CITY OF BURLINGTON
DEPARTMENT OF PUBLIC WORKS

645 Pine Street, Suite A
Post Office Box 849
Burlington, VT 05402-0849
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802.863.0466 FAX
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www.burlingtonvt.gov/dpw

Chapin Spencer
DIRECTOR OF PUBLIC WORKS

M E M O R A N D U M

TO: PUBLIC WORKS COMMISSION
FM: CHAPIN SPENCER, DIRECTOR
DATE: JULY 9, 2015
RE: PUBLIC WORKS COMMISSION MEETING

Enclosed is the following information for the meeting on July 15, 2015 at 6:30 PM at **585 Pine St – Auditorium**

1. Agenda
2. Consent Agenda
3. Residential Parking Management Study
4. Review Downtown Parking
5. 2015 VTrans Bicycle & Pedestrian Program Grant Candidates
6. Increase Driver Awareness of Yield Condition
7. Minutes of 6-17-15

Non-Discrimination
The City of Burlington will not tolerate unlawful harassment or discrimination on the basis of political or religious affiliation, race, color, national origin, place of birth, ancestry, age, sex, sexual orientation, gender identity, marital status, veteran status, disability, HIV positive status or genetic information. The City is also committed to providing proper access to services, facilities, and employment opportunities. For accessibility information or alternative formats, please contact Human Resources Department at 865-7145.

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Chapin Spencer
DIRECTOR OF PUBLIC WORKS

M E M O R A N D U M

To: Amy Bovee, Clerks Office
From: Chapin Spencer, Director
Date: July 9, 2015
Re: Public Works Commission Agenda

Please find information below regarding the next Commission Meeting.

Date: **July 15, 2015**
Time: 6:30 – 9:00 p.m.
Place: **585 Pine Street – Auditorium**

A G E N D A

ITEM		
1		Agenda
2	5 Min	Elect Chair, Vice Chair & Clerk
3	10 Min	Public Forum
4	5 Min	Consent Agenda
		4.10 Champlain College Temporary Bus Stop
		4.20 3-Way Stop Control at Shore Road & Balsam Street
		4.30 439 College Street Shuttle Stop Request
		4.40 Relocation of Three Accessible Spaces on St. Paul St for New CCTA Transit Station
		4.50 Driveway Encroachment/Loading Zone Requests for North Winooski Ave
5	55 Min	Residential Parking Management Study
		5.10 Communication, N. Losch
		5.20 Conflicts of Interest, G. Bergman
		5.30 Discussion

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6 30 Min Review Downtown Parking
- 6.10 Communication, C. Spencer
- 6.20 Discussion

7 5 Min 2015 VTrans Bicycle & Pedestrian Program Grant Candidates
- 7.10 Communication, N. Losch
- 7.20 Discussion

8 5 Min Increasing Driver Awareness of Yield Condition
- 8.10 Communication, D. Roy
- 8.20 Discussion
- 8.30 Decision

9 5 Min Minutes of 6-17-15

10 10 Min Director's Report – August Meeting Date?

11 10 Min Commissioner Communications

12 **Adjournment & Next Meeting Date – August 19 &September 16, 2015**

MEMORANDUM

July 9, 2015

TO: Public Works Commission

FROM: Damian Roy, DPW Engineering Technician DRR

CC: Norman Baldwin, City Engineer
Chapin Spencer, Director of Public Works

RE: Champlain College Temporary Bus Stop

Background:

Staff received a request from Mr. John Caulo, Vice President of Campus Planning & Auxiliary Services for Champlain College, regarding the colleges need to remove the temporary bus stop on Maple Street that was installed last summer. In the July 2014 Commission, approval was given to install a sixty-five (65) foot temporary bus stop in front of the Hauke Campus Center at 375 Maple Street due to the Communications and Creative Media building (CCM) construction making the existing bus stop unavailable. This temporary bus stop serves the Spinner Place shuttle which runs on a half-hour schedule between 7:00am and 9:00pm during the school year.

Observations:

The restored bus stop will be sixty-five (65) feet long, the same length as the temporary bus stop. This will leave one hundred ten (110) feet of curb for installing five (5) unrestricted parking spaces westerly of the bus stop. *Please see the attached drawing, picture, emails, and the July 2014 Commission item documenting this request.*

Conclusions:

Construction of the CCM is scheduled for completion this August. At this time it will be necessary to remove the temporary bus stop and restore the bus stop to its previous location

FCC 7-9-15

approximately one hundred (100) feet westerly along Maple Street. No negative impact to on-street parking is anticipated.

Recommendations:

Staff recommends that the Commission adopt:

- The removal of the temporary bus stop in front of 375 Maple Street in favor of unrestricted parking.

- The installation of a sixty-five (65) foot bus stop on Maple Street one-hundred (100) feet westerly of its existing location.

Damian Roy

From: Caulo, John <jcaulo@champlain.edu>
Sent: Wednesday, June 24, 2015 1:57 PM
To: Chapin Spencer; Norm Baldwin; Damian Roy
Cc: Nic Anderson
Subject: Champlain College: Shuttle Bus Stop on Maple Street
Attachments: MapleStreetTempShuttle060314.pdf; ProposedBusStopChanges-Images.pdf

Gentlemen:
Thanks for taking the time Tuesday to discuss various items of common interest at Champlain College with Nic and myself. We will be following up with you on the various items, as required and/or requested.

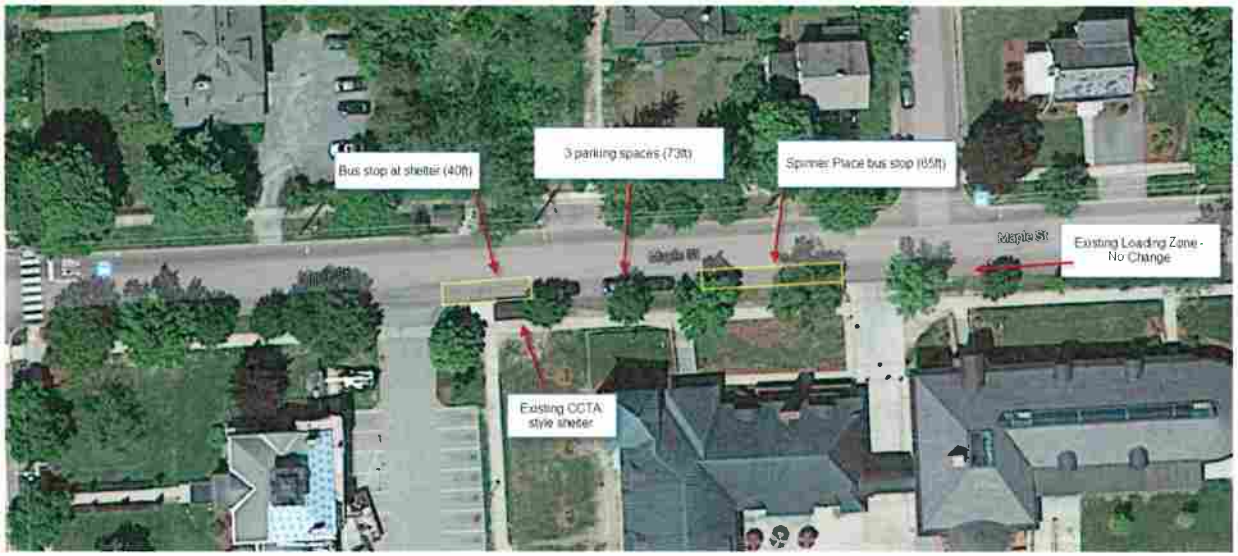
With specific regard to the above-referenced matter, let this correspondence serve as written notice to the Public Works Commission that the temporary bus stop permitted by the City last summer (see attached letter request dated 6/3/14) will no longer be needed, as of Friday August 21st. Further, we request the College's shuttle bus stop resume operations at the previously permitted location at the existing campus bus shelter along Maple Street as of Monday, August 24th.

As we discussed at the meeting, the construction of the new *Communications and Creative Media* building (CCM) required us to relocate the campus bus stop from the existing shelter location to one approximately 100 feet easterly along Maple Street. With construction slated to be completed by mid-August, the shuttle bus stop should return to the general shelter location, as originally contemplated by the College, and approved through the Development Review Board process (see attached images).

We are available to work with you and your staff to clearly layout the dimensions of the bus stop at your earliest convenience. Ideally this area would also be striped, if possible, to make it clear for the public. Again, thank you for your consideration of this matter.
-john

--
John Caulo - *Associate Vice President* | *Campus Planning & Auxiliary Services*
802.865.5470 (direct)
802.233.6640 (mobile)
Champlain College | PO Box 670 | BTV | 05402-0670
www.champlain.edu

Proposed Bus Stop Changes on Maple St - **Existing**



Proposed Bus Stop Changes on Maple St - **Proposed**

Panoramic Photograph

BURLINGTON, VT
PUBLIC WORKS

MEMORANDUM

July 10, 2014

TO: Public Works Commission

FROM: Colin Brett CB

RE: Champlain College Shuttle stop request

Background:

Staff received a request from John Caulo of Champlain College for a shuttle drop off/pick-up space on Maple Street. The normal shuttle stop is currently unavailable due to construction. Champlain College is requesting that a temporary (for the calendar school year 2014/2015) shuttle space be implemented in order to accommodate the shuttle. The Spinner Place Shuttle runs during the Champlain College school year (late August through May), transporting students back and forth from off-campus housing in Winooski. The shuttle runs on a half-hour schedule between 7am and 9pm daily. The shuttle stops on the south side of Maple Street between South Willard Street and Summit Street.

Observations:

The current shuttle stop is unavailable due to construction. With construction underway the shuttle stops mid-block in traffic to drop off/pick up students. This can cause unnecessary traffic back-ups, especially during peak hour times. In order to allow unobstructed traffic circulation the shuttle needs a bus stop established out of the lane of travel along the curbline further west. The proposed shuttle stop will begin on the west side of the driveway (west of the loading zone) and extend 60' west down the south side of Maple Street. Three parking spaces will need to be removed to allow for the shuttle space to be implemented. This will result in a sixty foot space that will accommodate a forty-five foot long bus.

Conclusions:

The current drop off/pick-up is not effective and should be altered. A shuttle running with a half hour frequency at this high volume location should have a designated drop off/pick-up area.

NB 7/10/14

Recommendations:

Staff recommends that the commission adopts the proposed shuttle drop off/pick-up space.

CHAMPLAIN
COLLEGE

163 South Willard Street
P.O. Box 670
Burlington, VT 05402-0670
(802) 860-2700 | (800) 570-5858
fax (802) 860-2767
www.champlain.edu

3 June 2014

Mr. Norm Baldwin, City Engineer
Burlington Department of Public Works
PO Box 849 – 645 Pine Street
Burlington, VT 05401

RE: Champlain College
Temporary Shuttle Bus Drop-Off along Maple Street

Dear Norm:

As a follow up to our recent conversations, let this correspondence confirm a request by Champlain College to create a shuttle bus drop-off area along the south side (eastward bound) of Maple Street mid-point between South Willard Street and Summit Street. As we discussed, we would like to appropriate 2-to-3 unmetered parking spaces across from Harrington Terrace for this purpose. Specifics follow:

The *Spinner Place* shuttle bus currently operates approximately nine (9) months per year (between late August and the following early May), carrying undergraduate students to/from off-campus housing located in downtown Winooski. The daily bus schedule (M-F) generally operates on the ½ hour, between 7am and 9pm.

Currently, the bus stops mid-block in traffic to allow students to disembark. The proposed drop off area would more safely accommodate onboarding without interfering with ongoing maple Street traffic.

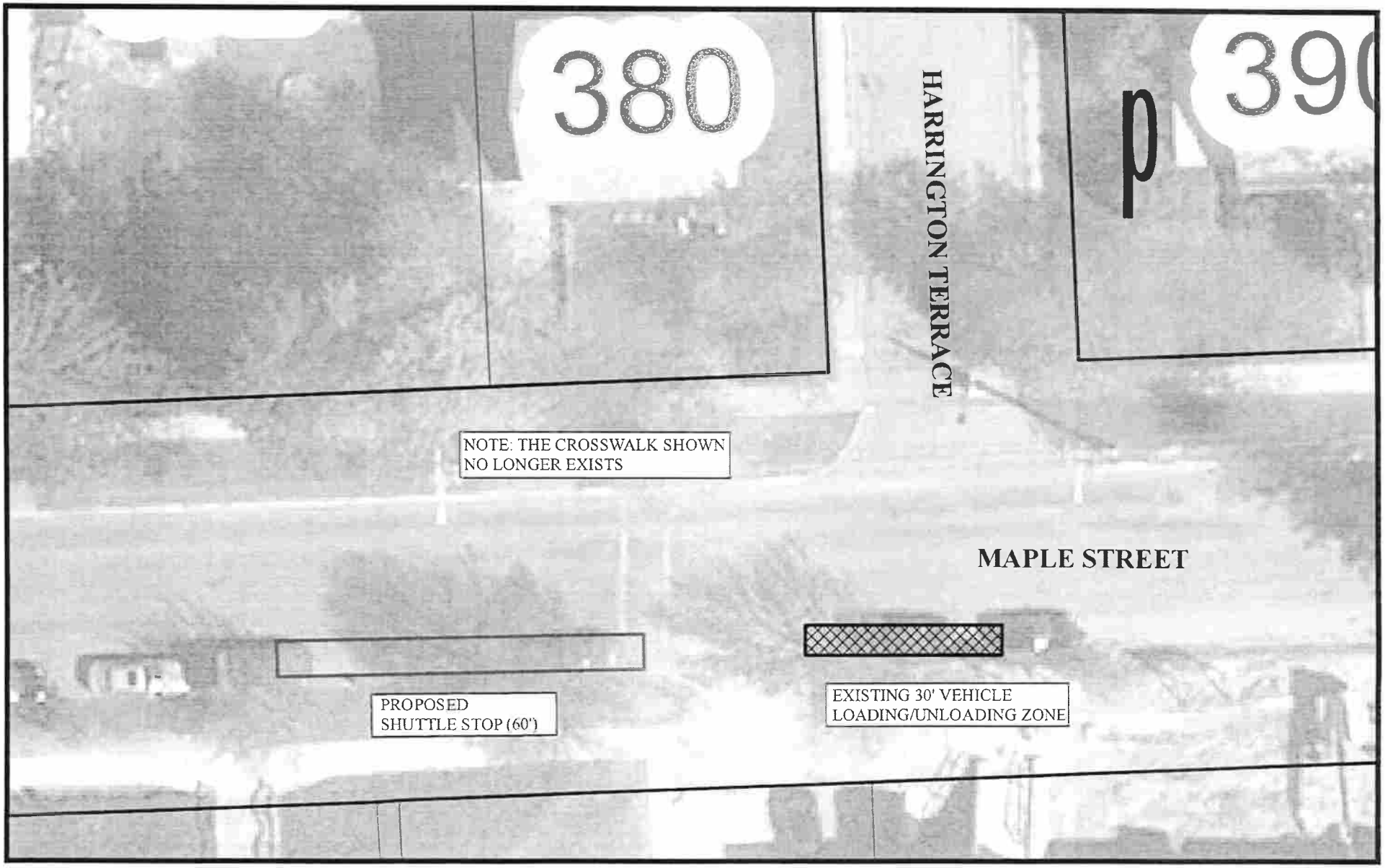
Our desire is to have a solution in place before mid-August, so we are prepared for the fall semester and run through the 2014/2015 academic year. We appreciate the City's consideration of this request. If additional information is required, please advise.

Sincerely,

John Caulo
Associate Vice President – Campus Planning & Auxiliary Services

City of Burlington

1 in = 20 ft



MEMORANDUM

July 2, 2015

TO: Public Works Commission

FROM: Damian Roy, DPW Engineer Technician DRR

CC: Norman Baldwin, City Engineer NB

RE: 3-Way Stop Sign Request at Shore Road and Balsam Street

Background:

The Department of Public Works received a request from Mark Fraser of 140 Shore Road to install 3-Way stop control at the intersection of Shore Road and Balsam Street. This request was presented to the June 2015 Commission and where it was decided that the installation of 3-way stop control at this intersection was not warranted. This decision was in line with staff's recommendation. In the weeks preceding this, staff failed to notify Mr. Fraser and the nearby residents who may be affected by his request. Therefore this request is being presented again this month after a full public process has been conducted.

In 2003 DPW evaluated a citizen driven request to install multi-way stop control at Balsam Street and Shore Road. Staff performed the Multi-Way Stop Warrant Analysis per MUTCD 2B.07 and determined the installation of multi-way stop control was not warranted or recommended given it did not meet volume thresholds and the intersection did not have balanced entering volumes from the Balsam and Shore approaches as a three-way stop.

Shore Road is a collector street with various local streets feeding into it. Balsam Street is one of these local streets with less traffic. On Balsam and Shore there are many homes who's only means of accessing the street network is by entering and passing through the intersection.

Observations:

Staff visited the Shore Road/Balsam Street intersection on the morning and evening of May 27th from 7:00am to 9:00am, and from 4:00pm to 6:00pm to conduct a Stop Sign Warrant Analysis as prescribed by MUTCD 2B.07 Multi-way Stop Applications (see attached). This

NB 7/2/15

form is the first step in determining if stop control is warranted at an intersection as adopted by DPW. Traffic volumes were observed at these times and are as follows:

- 7:00am through 9:00am
  - Shore Road: 233 Vehicles, 17 Pedestrians, 13 bicyclists
  - Balsam Street: 14 Vehicles, 3 Pedestrians, 0 bicyclists

- 4:00pm through 6:00pm
  - Shore Road: 276 Vehicles, 6 Pedestrians, 2 bicyclists
  - Balsam Street: 4 Vehicles, 0 Pedestrians, 0 bicyclists

The MUTCD Multi-way Stop Application states that vehicular volumes entering the intersection from the major street approaches (total of both approaches) must average at least 300 vehicles per hour for any 8 hours on an average day, for traffic approaching from the minor streets the average vehicles per hour must meet at least 200 vehicles. Traffic counts for vehicles approaching the intersection from Shore Road and from Balsam Street averages 127 vehicles per hour and 5 vehicles per hour during peak times respectively. Staff contacted the Burlington Police Department to request all accident reports for the intersection within the previous twelve month period. BPD responded with a report indicating that no accidents have taken place at this location which falls below the minimum 5 or more reported crashes within a 12-month period required to warrant a stop sign as indicated by the MUTCD Multi-way Stop Application.

Conclusions:

The Stop Sign Warrant Analysis takes into account the volume of entering traffic from both major and minor street approaches to determine if stop signs are necessary to provide safe and clear right of way assignments. Multi-way stop control is applied in conditions where there are nearly balanced entering volumes of traffic for both major and minor street approaches. Our traffic counts during peak hours were well below the warrant threshold without performing counts throughout the full 8-hour period. In addition there is no accident history that would suggest the need for stop control. Staff is recommending the denial of Mr. Fraser's request to adopt multi-way stop control at Shore Road and Balsam Street.

Recommendations:

Staff recommends that the Commission:

- Deny Mr. Fraser's request to install 3-way Stop Control at the intersection of Shore Road and Balsam Street.

Shore Rd + Balsam St

STOP SIGN WARRANT

MUTCD 2B.07 Multi-way Stop Application

01. Multi-way stop control can be useful as a safety measure at intersections if certain traffic conditions exist. Safety concerns associated with multi-way stops include pedestrians, bicyclists, and all road users expecting other road users to stop. Multi-way stop control is used where the volume of traffic on the intersecting roads is approximately equal.

02. The restrictions on the use of STOP signs described in Section 2B.04 also apply to Multi-way stop applications.

03. The decision to install multi-way stop control should be based on an engineering study.

04. The following criteria should be considered in the engineering study for a multi-way STOP sign installation:

A. Where the traffic control signals are justified, the multi-way stop is an interim measure that can be installed quickly to control traffic while arrangements are being made for the installation of the traffic control signal.

n/a

B. Five or more reported crashes in a 12-month period that are susceptible to correction by a multi-way stop installation. Such crashes include right-turn and left-turn collisions as well as right-angle collisions.

Zero accidents reported

C. Minimum Volumes:

1. The vehicular volume entering the intersection from the major street approaches (total of both approaches) averages 300 vehicles per hour for any 8 hours of an average day; and

7-9am = 233 4-6pm = 276

2. The combined vehicular, pedestrian, and bicycle volume entering the intersection from the minor street approaches (total of both approaches) averages at least 200 units per hour for the same 8 hours, with an average delay to minor-street vehicular traffic of at least 30 seconds per vehicle during the highest hour; but

7-9am = 17 4-6pm = 4

3. if the 85th percentile approach speed of the major street exceeds 40 MPH, the minimum vehicular volume warrants are 70 percent of the volumes provided and Items 1 and 2.

D. Where no single criterion in satisfied, but criteria B, C.1, and C.2 are all satisfied to 80 percent of the minimum values. Criterion C.3 is excluded from this criterion.

n/A

Option:

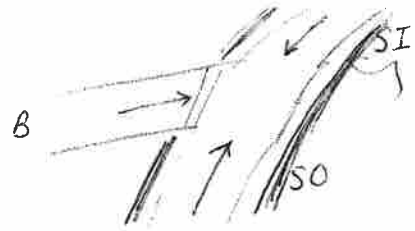
Other criteria that may be considered in an engineering study include:

A. The need to control left-turn conflicts

B. The need to control vehicle/pedestrian conflicts near locations that generate high pedestrian volumes;

C. Locations where a road user, after stopping, cannot see conflicting traffic and is not able to negotiate the intersection unless conflicting cross traffic is also required to stop; and

D. in intersection of two residential neighborhood collector (through) streets of similar design and operating characteristics where multi-way stop control would improve operational characteristics of the intersection.



91544319

7a-9a

Shore Road - Vehicles | Bikes | Peds

233 vehicles

100

17 units

Balsam St - Vehicles | Bikes | Peds

4p - 6p

Shore Road

		Peds	Bikes
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[redacted]

Balsam St

||||	(4)	No peds / bikes

Damian Roy

From: Hackley, Jane R. <jhackley@bpdvt.org>
Sent: Wednesday, May 27, 2015 10:21 AM
To: Damian Roy
Subject: RE: Accident Reports.

Good morning,
No reports of accidents at that location. I ran the search for one year.

Jane

From: Damian Roy [mailto:droy@burlingtonvt.gov]
Sent: Friday, May 22, 2015 10:16 AM
To: Hackley, Jane R.
Subject: RE: Accident Reports.

Apologies Jane, one more location, same criteria:

- The intersection of Shore Road and Balsam Street.

Thank you!

Damian Roy, Engineering Technician
Burlington Public Works Department
645 Pine St. Burlington VT 05401
Desk: 802.865.5832
Cell: 802.598.8356
Email: droy@burlingtonvt.gov
Web: www.burlingtonvt.gov/dpw

From: Damian Roy
Sent: Friday, May 22, 2015 10:00 AM
To: Hackley, Jane
Subject: Accident Reports.

Hi Jane,

I am in need of accident reports in two locations for the last two years:

- Shelburne Road between Home Avenue and the on-ramp to 189
- Pine Street between South Crest Drive and Queen City Park Road

I'll need the full reports to be able to determine cause.

Thanks Jane, and have a great long weekend!

Damian Roy, Engineering Technician
Burlington Public Works Department
645 Pine St. Burlington VT 05401

Damian Roy

From: Clint Erb <clinterb@comcast.net>
Sent: Friday, July 03, 2015 1:58 PM
To: Damian Roy
Subject: stop signs at Balsam and Shore

Dear Mr. Roy:

I received your notice regarding the potential stop signs at the intersection of Balsam and Shore Roads in the New North End. I have lived at the corner of Shore and Holly for almost 11 years. I think this idea is a bad one. The amount of traffic leaving and entering Balsam is minimal. If I encounter one car a week on Balsam it is a lot. Shore Road is a main street that connects various side streets in the neighborhood. Putting stop signs up only inhibits the direct flow of traffic. If the issue is speeding traffic, then there are better ways to address that issue, i.e. speed bumps. There is a stop sign one block East of the Balsam intersection so putting another so close will not slow the traffic for the lower half of Shore Road. It will just become a nuisance for drivers as well as increasing noise and pollution of cars stopping and starting.

I hope your department can come up with a better solution to whatever the problem may be.

Sincerely,
Clint Erb
6 Holly Lane

Damian Roy

From: Gus Buchanan <gbuchanan@rockpoint.org>
Sent: Monday, July 06, 2015 1:45 PM
To: Damian Roy
Cc: Kara Buchanan
Subject: Balsam / Shore Stop sign proposal

I have a home at 4 Balsam street, which is on the corner of Shore Rd and have lived her 15 years. My wife served on a council that worked extensively on traffic calming on Shore rd during 2002, and I attended all the relevant meeting pertaining to proposed measures. We worked hard to look at many alternatives to address the speed and volume of traffic on Shore Rd and came up with a number of possibilities to address the range of concerns of the neighbors. In the end the only enhancements that were applied were textured and painted crosswalks at intersections and the bike path.

During the course of the work the committee did look at stop signage at various points along Shore Rd. It became very clear that this type of traffic calming measure was the least appropriate and actually caused more problems. (braking noise, start up noise, gas use, exhaust to name a few) The group did not recommend any stop signs in the final proposal.

I **do not support** the installation of 3 Stop signs at the intersection of Balsam and Shore Rds.

Thanks for taking input on the request.

--
Gus Buchanan
4 Balsam St, Burlington

Damian Roy

From: James Whitehouse <hollylane15@hotmail.com>
Sent: Tuesday, July 07, 2015 4:11 AM
To: Damian Roy
Subject: Balsam & Shore Rd

Hi Damian

My name is James Whitehouse and I moved on Holly Lane in 1980. I have never seen a accident at that intersection, or even a close call. I don't know why there needs to be a 3 way stop sign when there is very few cars coming off Balsam turning onto Shore Rd. There is a lot more traffic on Shore Rd, but I don't think the traffic on Balsam has to wait more than 5 seconds to get on Shore Rd most the time. And if it's supposed to be a safety issue I would think there would be some accidents at that intersection. I don't remember any accidents there. Also if the person who requested the stop signs thinks that intersection is not safe they can go up Brierwood Lane to the stop sign at Fern and Shore Rd.

Thank You
James Whitehouse

Shore Rd. Traffic Calming
Steering Committee Meeting – 1/7/03
Submitted by Kara Buchanan

Attendees:

Kara Buchanan
Michael Crane
Pat Davis
Margaret Gallant
Robert Montgomery
Joel Fitzgerald
Renee Vincent
Larry Walters
Tom McKeown
Bart Sponseller

Norm Baldwin, DPW
Bruce _____, facilitator

Agenda:

1) To finish last segment of Shore Rd. proposal
2) Put together written proposal to send to larger neighborhood
3) Next Steps - Discuss plan for large group meeting and how vote will work

Finishing Shore Road Proposal:

Balsam/Shore Intersection
Norm B. presented results of Balsam St. survey.
9 residences were surveyed. 1 was in favor of the proposal, 2 were in favor of a modified plan, 6 believed that proposed installation was unnecessary.
Renee V. explained her process of conducting the survey and the materials provided to residents.
Kara B. commented that she felt that residents' responses were not based on an understanding of how this intersection fit into the bigger picture and that they were not well educated about the traffic calming measures proposed. She spoke to two neighbors after reading the survey results to better understand their points of view against the proposal. She believes that this section of Shore road needs to be slowed and to be consistent with a plan for keeping traffic slowed throughout the route.
Larry W. felt that this corner really needed measures installed because drivers' vision was impeded here. Rob M. and Bart S. agreed.

Renee V. proposed rejecting Norm's proposal as stated in survey and putting no measures at this intersection in order to honor the wishes of Balsam St. residents. Kara pointed out that residents she'd spoken to deemed the proposal unnecessary, they were not

necessarily opposed. Renee disagreed with this and said that a 3-way stop sign there was also mentioned as an acceptable option to most residents.
Larry W. proposed that the steering committee accept Norm's proposal as part of overall plan without consensus of entire group, as 8 to 3 of those at the previous meeting were in favor of the proposal. (See 12/2/03 minutes)

Joel F. suggested taking the proposal apart to find pieces we could compromise on.

Three proposals were then drafted:

1) 3-way stop sign at intersection
2) textured median on Shore rd. either side of Balsam intersection running between Wildwood and Glenwood Streets.
3) A similar median starting further away from Balsam intersection in either direction.

There was much discussion about the pros and cons of each proposal.

Pat Davis arrived late to the meeting at this point and was brought up to speed.

The group facilitator suggested a straw pole to get each persons opinion on the options:

Bart S. – A stop sign would make Brierwood more susceptible to cut-off drivers. Therefore he was not in favor or else we would need to adjust measures there.
Kara B. – In lieu of Norm's proposal being accepted, stop sign seemed like only other acceptable option to slow traffic turning onto Balsam from Shore, but thought that medians are still needed on this section of Shore as well.
Joel F. – Questioned whether medians would be in line with (affective enough) compared to rest of neighborhood measures proposed (such as on Dale).
Larry W. – Finds Balsam intersection treacherous
Pat D. – Wants nothing done here.

The group questioned Norm at this time about whether a stop sign here would be approved by the commission. He replied that this intersection did not meet the requirements for installation. He wouldn't recommend it to them. They might be inclined to consider it if the entire neighborhood was clearly in favor of it. Tom M. expressed his concern that the neighborhood (particularly those living west of this point) would NOT be in favor and that we might be risking acceptance of the proposal so far by inserting this. Kara B. suggested that we should have a back up plan for this intersection should stop sign not go through.

After some time, the moderator suggested that we move on to try to finish our agenda. The group finally resigned to include the 3-way stop at Balsam St. as this was the only proposal the group was able to compromise on in order to finish the proposal.

Bart expressed opposition to the 3-way stop at Balsam 3-way stop at Balsam but so as not to stifle the greater plan, agreed to compromise on this point. Bart, as a result of the decision to accept the 3-way stop at Balsam St, will go back to his Brierwood and Fern street neighbors to discuss options to modify the original Brierwood/Fern proposal. The original plan for Brierwood and Fern consisted of 3 rumble strips and a median on the corner of Brierwood and Fern.

At this point, Norm brought up the commission's plan to include a much larger group than previously involved in the large group decision making. The plan was to send flyers to the Woodlawn, Woodbury and Staniford Rd. neighborhoods as well. The committee was shocked, confused and angered by this unexpected and ill-timed information. Heated conversation ensued about the inequity of these people being involved in our decisions when we had not been included in theirs and that the whole project we had undertaken here was to correct those previous inequities and the resulting negative effect on traffic in our own neighborhood. Some committee members expressed feeling that all this hard work and all the time at these meeting was in vain if these other neighborhood s were included as they could not be in favor of any measures that might send more traffic back onto their streets even if it was fairly spreading the burden. Members explained that they were in support of the DPW having a more comprehensive approach to traffic calming but that this was not at all the right time to instate this policy.

The group refocused and moved on to discuss the next steps of the process.

First on the list was writing a description of the proposal to be sent out to all residents. Tom M. had drafted an initial draft and outline of such a document. Members talked of the need to have a map of good quality and large enough detail and that people needed a couple of weeks to digest the material before the meeting. It was suggested that a large map, such as we had been using, should be on display somewhere. It was agreed that the best venue would be to have it at St. Marks on town meeting day.

Tom M. agreed to take on writing the mailing. He planned to finish a draft by Jan. 21st in order to send it to all steering committee members for comments which need ed to be returned to him by Jan. 28th.

The committee discussed an appropriate timeline of events working backward from a large group meeting date. The date chosen for this meeting was March 10th or 11th. Residents should receive a reminder of the meeting @ March 2nd and alerted to check out the map on display at town meeting day.
It was deemed that residents should receive the mailing at least 2 weeks prior to meeting which would be @ Feb. 24th. This is during the school winter vacation, therefore receiving the mailing a little earlier would be good for those leaving town. One week earlier would be Feb. 17th . It was not discussed just how long would be needed to print, assemble and distribute these mailings. But it appears that the document should be ready @ Feb. 10th.

Next discussed was how the large neighborhood meeting will actually work.

1) All committee members should be present and a spokes person or persons would present our proposal
2) Committee would be seated up front to address questions and comments.
3) Steve Goodkind and Norm Baldwin should be present
4) Bruce ? should be present as group moderator.

Lastly, the group questioned what would constitute a clear majority when the group voted on acceptance of the proposal.
Tom. M. suggested 70-80%
Margaret and Renee felt it should be more like 90%
Kara suggested that the government goes on 2/3 majority = 67%
Norm suggested that 60 % was the figure DPW was looking at.

The meeting concluded approximately 55 minutes late.

MEMORANDUM

July 2, 2015

TO: Public Works Commission

FROM: Kara Yelinek, DPW Engineering Intern KBY
Damian Roy, DPW Engineering Technician DER

CC: Norman Baldwin, Asst. Director/City Engineer NB

RE: College Street Shuttle Stop Request – 439 College St

Background:

Staff received a request from Mr. Jon Moore, Planning Manager for the Chittenden County Transportation Authority, requesting a new bus stop to be installed on College Street. This new stop would service the College Street Shuttle. This route is largely used by UVM students and staff, making the top of College Street near The Waterman Building one of its most populated stops. Currently, there is an official stop at UVM Waterman for downhill service, but there is not an official stop for eastbound, uphill service. According to Mr. Moore, the College Street route was modified in the late summer of 2013 to travel uphill to UHC along South Prospect Street, providing service along the UVM green. Mr. Moore says that the College Street Shuttle will generally pick-up and drop-off passengers at any safe location along the route, however, drivers have raised concerns about stopping along the UVM green due to the high pedestrian volumes and a lack of sidewalk parallel to the roadway onto which passengers can off-load. There has also been passenger confusion due to the lack of a signed bus stop in the area. As a result, a formal bus stop at 439 College Street would ease passenger confusion and increase passenger safety, while still allowing access to the highly desired area.

Observations:

Staff has ridden the route and observed the safety concerns surrounding an informal bus stop along the UVM green as the bus travels North on Prospect toward UHC. Uphill service stops are frequently requested at the top of College Street. There is no sidewalk parallel to the South Prospect roadway at this location on the green where the bus typically stops, therefore nowhere onto which passengers can safely off-load. The bus typically stops to off-load

NB 7/2/15

passengers shortly after turning North onto Prospect Street, before the two mid-block crosswalks that service the UVM green and The Waterman Building. A large volume of pedestrians utilize the crosswalks in this area in front of The Waterman Building. The newly proposed location does not interfere with mid-block pedestrian crosswalk to its East, nor the Waterman parking lot entrance on the opposite side of the road. This location provides ample time and distance for the bus to safely merge into the left turning lane and continue its scheduled route. Vehicles passing the stopped bus at this location will be able to do so and reach their desired turning lane safely. Bicyclists using the bike lane will have to navigate around the bus while the bus is stopped as they do at other locations around the city. The greenspace that separates the road and sidewalk at this location is approximately ten feet wide, providing ample space for a future bus stop shelter if desired within the city's right of way.

Conclusions:

Installing a new bus stop in front of 439 College Street would enable the CCTA buses servicing the nearby areas to load/off-load passengers safely and efficiently. This would also allow traffic to flow more efficiently along South Prospect Street in this area, as it would eliminate temporary lane blockages created by the informal bus stop along the busy roadway.

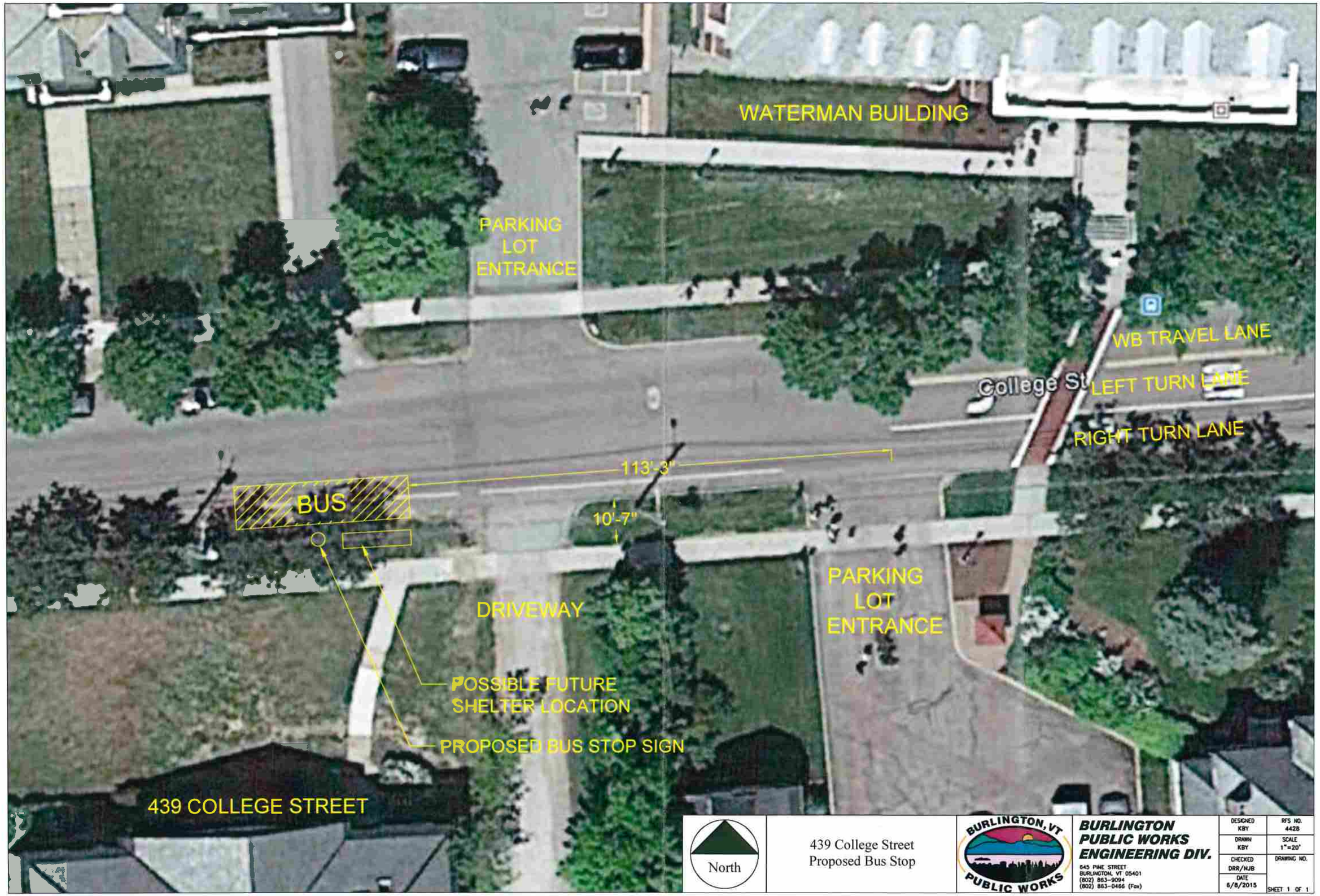
Recommendations:

Staff recommends that the Commission adopt:

- The addition of a CCTA bus stop in front of 439 College Street.

Attachments:

- AutoCAD rendering of street geometry and proposed location
- CCTA Route map for College Street Shuttle route
- Email correspondence



North

439 College Street
Proposed Bus Stop

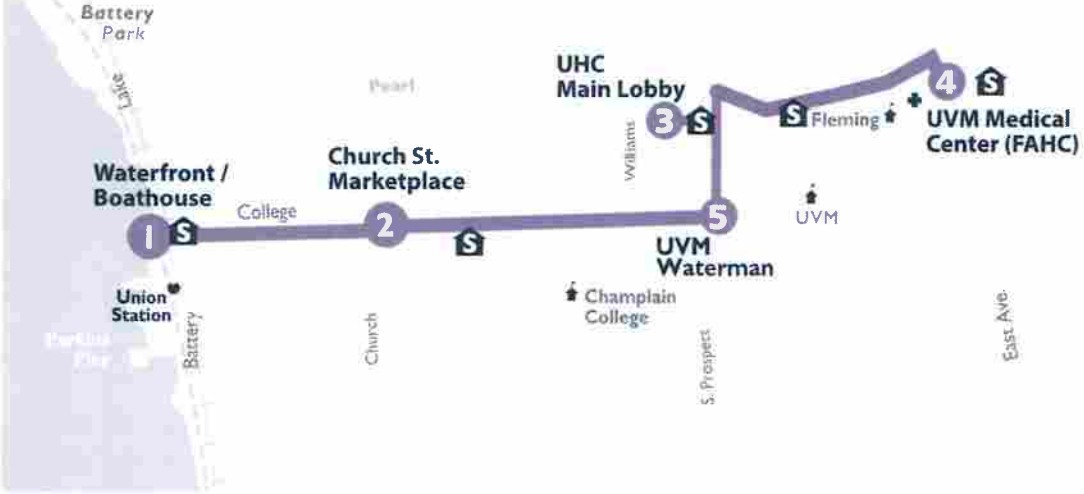
BURLINGTON PUBLIC WORKS ENGINEERING DIV.
645 PINE STREET
BURLINGTON, VT 05401
(802) 863-9094
(802) 863-0466 (Fax)

DESIGNED KBY	RFS NO. 4428
DRAWN KBY	SCALE 1"=20'
CHECKED DRR/NJB	DRAWING NO.
DATE 6/8/2015	SHEET 1 OF 1

College Street Shuttle

ROUTE NUMBER 11

THIS SHUTTLE IS **FREE!**



Specific events held at Burlington's waterfront will require the temporary relocation of the College Street Shuttle waterfront stop from the shelter at the base of College Street. The bus picks up at Union Station at One Main Street on special event dates. Signage at the waterfront during these events will direct passengers to the correct pick-up location.

For additional information regarding event delays, visit our website: cctaride.org

MONDAY–FRIDAY

Waterfront / Boathouse (1)	Church St. Marketplace (2)	UHC Main Lobby (3)	UVM Medical Center (FAHC) (4)	UVM Waterman (5)	Church St. Marketplace (2)	Waterfront / Boathouse (1)
–	–	–	6:15	6:19	6:24	6:30
6:30	6:34	6:39	6:45	6:49	6:54	7:00
7:00	7:04	7:09	7:15	7:19	7:24	7:30
–	–	–	7:30	7:34	7:39	7:45
7:30	7:34	7:39	7:45	7:49	7:54	8:00
7:45	7:49	7:54	8:00	8:04	8:09	8:15
8:00	8:04	8:09	8:15	8:19	8:24	8:30
8:15	8:19	8:24	8:30	8:34	8:39	8:45
8:30	8:34	8:39	8:45	8:48	8:54	9:00
8:45	8:49	8:54	9:00	9:04	9:09	9:15
AM / PM — 15-minute service continues UNTIL 6:00 p.m.						
5:45	5:49	5:54	6:00	–	–	–
6:00	6:04	6:09	6:15	6:19	6:24	6:30
6:30	6:34	6:39	6:45	6:49	6:54	7:00
7:00	7:04	7:09	7:15	7:19	7:24	7:30
7:30	7:34	7:39	7:45	7:49	7:54	8:00
8:00	8:04	8:09	8:15	8:19	8:24	8:30
8:30	8:34	8:39	8:45	8:49	8:54	9:00

SATURDAY–SUNDAY

Waterfront / Boathouse (1)	Church St. Marketplace (2)	UHC Main Lobby (3)	UVM Medical Center (FAHC) (4)	UVM Waterman (5)	Church St. Marketplace (2)	Waterfront / Boathouse (1)
–	–	–	8:45	8:50	8:54	9:00
9:00	9:04	–	9:15	9:20	9:24	9:30
9:30	9:34	–	9:45	9:50	9:54	10:00
10:00	10:04	–	10:15	10:20	10:24	10:30
10:30	10:34	–	10:45	10:50	10:54	11:00
11:00	11:04	–	11:15	11:20	11:24	11:30
11:15	11:19	–	11:30	11:35	11:39	11:45
AM — 15-minute service continues UNTIL 6:00 p.m.						
PM						
6:00	6:04	–	6:15	6:19	6:24	6:30
6:30	6:34	–	6:45	6:49	6:54	7:00
7:00	7:04	–	7:15	7:19	7:24	7:30
7:30	7:34	–	7:45	7:49	7:54	8:00
8:00	8:04	–	8:15	8:19	8:24	8:30
8:30	8:34	–	8:45	8:49	8:54	9:00

Shaded and weekend trips operate Memorial Day Weekend through Columbus Day Weekend ONLY.

Nicole Losch

From: Jon Moore <jmoore@cctaride.org>
Sent: Thursday, May 29, 2014 9:15 AM
To: Nicole Losch
Subject: Re: College Street Bus Stop
Attachments: 439 College.docx

Hi Nicole,

Thanks for looking into this. See below in red for responses to your questions.

- Was this requested by passengers, UVM or others, or was this identified as a gap by CCTA? A combination of all the above. We modified the College Street route late last summer so that the bus travels uphill to UHC via Prospect instead of the previous routing via Williams. This created new uphill service on Prospect between College and the UHC entrance along the UVM green. The College Street route will generally pick-up and drop-off passengers at any safe location along the route but drivers have raised concerns about stopping along the UVM green due to the high pedestrian volumes. There has also been passenger confusion due to the lack of a signed bus stop in the area.

We initially wanted to instal a bus stop on the UVM green about half way between College and Pearl so that the bus could clear the pedestrian crossings to Waterman and the College St. intersection. UVM has expressed the desire to minimize signage on the green and we jointly (with CATMA) identified the 439 College location as an area which could still serve the Waterman area without having to stop along the UVM green.

- Is there any reason to not move the new stop closer to the mid-block crosswalk (east of 439 College), but before the turn lanes begin? The location identified is east of the 439 College driveway so it is relatively close to the mid-block crosswalk. We chose this location so that the bus has time to safely merge into the left hand turn lane onto Prospect and to minimize conflicts with the UVM parking lot located just west of the crosswalk. There is also an existing pole with no signage currently attached at the location identified which would negate the need for an additional pole in the area and allow us to get a new stop installed quickly.

Thanks again for looking into this and please let me know if you have any further questions. Please also find a Googlemaps street view of the proposed location and pole referenced above.

Jon

On Thu, May 29, 2014 at 8:33 AM, Nicole Losch <NLosch@burlingtonvt.gov> wrote:

Hi Jon,

We have a staff meeting this afternoon -- I'll run this by a couple of others then.

To help answer some potential questions:

- Was this requested by passengers, UVM or others, or was this identified as a gap by CCTA?

- Is there any reason to not move the new stop closer to the mid-block crosswalk (east of 439 College), but before the turn lanes begin?

Thanks!

Nicole Losch, PTP
Transportation Planner :: Bicycle & Pedestrian Program Manager
ph 802.865.5833 :: f 802.863.0466 :: nlosch@burlingtonvt.gov
645 Pine Street Suite A, Burlington VT 05401 ::
www.burlingtonvt.gov/DPW

From: Jon Moore <jmoore@cctaride.org>
Sent: Wednesday, May 28, 2014 3:59 PM
To: Nicole Losch
Subject: College Street Bus Stop

Hi Nicole,

We have identified a location for a new bus stop at 439 College Street. I met with CATMA and UVM last week and they requested we contact DPW prior to installing the stop due to the high traffic volume (vehicle and pedestrian) of the area.

Can you please let me know if you see any issues with the location or direct me to someone else who may want to provide feedback?

Thanks,

Jon Moore
Planning Manager
Chittenden County Transportation Authority
802-540-2445 (Direct Line)
802-864-2282 (CCTA Main Office

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Jon Moore
Planning Manager
Chittenden County Transportation Authority


File Edit View History Bookmarks Tools Help
College Street Bus Stop - Imo...
439 College St - Google Maps
Most Visited
Getting Started
Latest Headlines
426-428 College St
Burlington, VT 05401 - approximate address
Street View - Apr 2012
Pole identified for possible new stop
439 College driveway
College St
Google
Back to Map
start
439 College St - Goog...

MEMORANDUM

July 2, 2015

TO: Public Works Commission

FROM: Damian Roy, DPW Engineering Technician DR

CC: Norman Baldwin, Asst. Director/City Engineer NB

RE: Relocation of Three Accessible Spaces for New CCTA Transit Station

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Background:

Staff received a communication from Brian Lowe, Projects Coordinator to the Mayor of Burlington, and from Henry Mays of the Vermont Department of Buildings & General Services (BGS) and Steve Carlson of CCTA to relocate three van accessible spaces currently located on Saint Paul Street serving the Zampieri State Office Building. The Zampieri Building is divided by two tenants to the north and south, each of these tenants offer services to the disabled community and require accessible parking spaces within reasonable distance to their entrances. The existing accessible spaces are designated van accessible spaces to help encourage vans to use these spaces instead of cars as the nearby parking garages cannot accommodate accessible vans.

The three existing accessible spaces must be relocated to accommodate the new CCTA Transit Station that removes all non-CCTA related on-street parking from this section of Saint Paul between Pearl Street and Cherry Street. In an effort to facilitate the project which is currently underway, DPW has placed temporary accessible space bags over nearby metered spaces to serve the disabled community and the Zampieri Building until permanent spaces are established.

Observations:

The three existing accessible spaces are located on the north and south end of the east side of Saint Paul Street. Two spaces are located on the southern end and are situated back to back immediate to the north east corner of Saint Paul and Cherry. The third space is located on the northern end and is the last available space before the intersection with Pearl Street. Staff reviewed the new CCTA Transit Station final design plans to determine the extent of the

NB 7/2/15

redesign within the City's Right of Way and to identify where the closest locations for the three accessible spaces to be relocated might be. Staff also visited the area to observe these locations and how they would best serve the disabled community in accordance with the Public Right-of-Way Accessibility Guidelines (PROWAG). Staff has identified two locations suitable:

- On south side of Pearl Street immediately in front of the Masonic Temple entrance at 151 Pearl Street. This space offers clear side and rear ramp unloading due to the bump out behind the space and reasonable distance to ramp to access the sidewalk.
- At the intersection of Cherry and Saint Paul, the existing second and third metered spaces from the north east corner on the north side of Cherry Street. The first space from this corner will be removed by a bump out as part of the CCTA project. The next two spaces on the north side offer clear sidewalk for side exiting ramps. The Cherry Street accessible ramp to the Zampieri Building is at this location to provide immediate access for these two spaces.

Please refer to the attached pictures and drawings showing the three existing spaces to be removed and their three proposed locations.

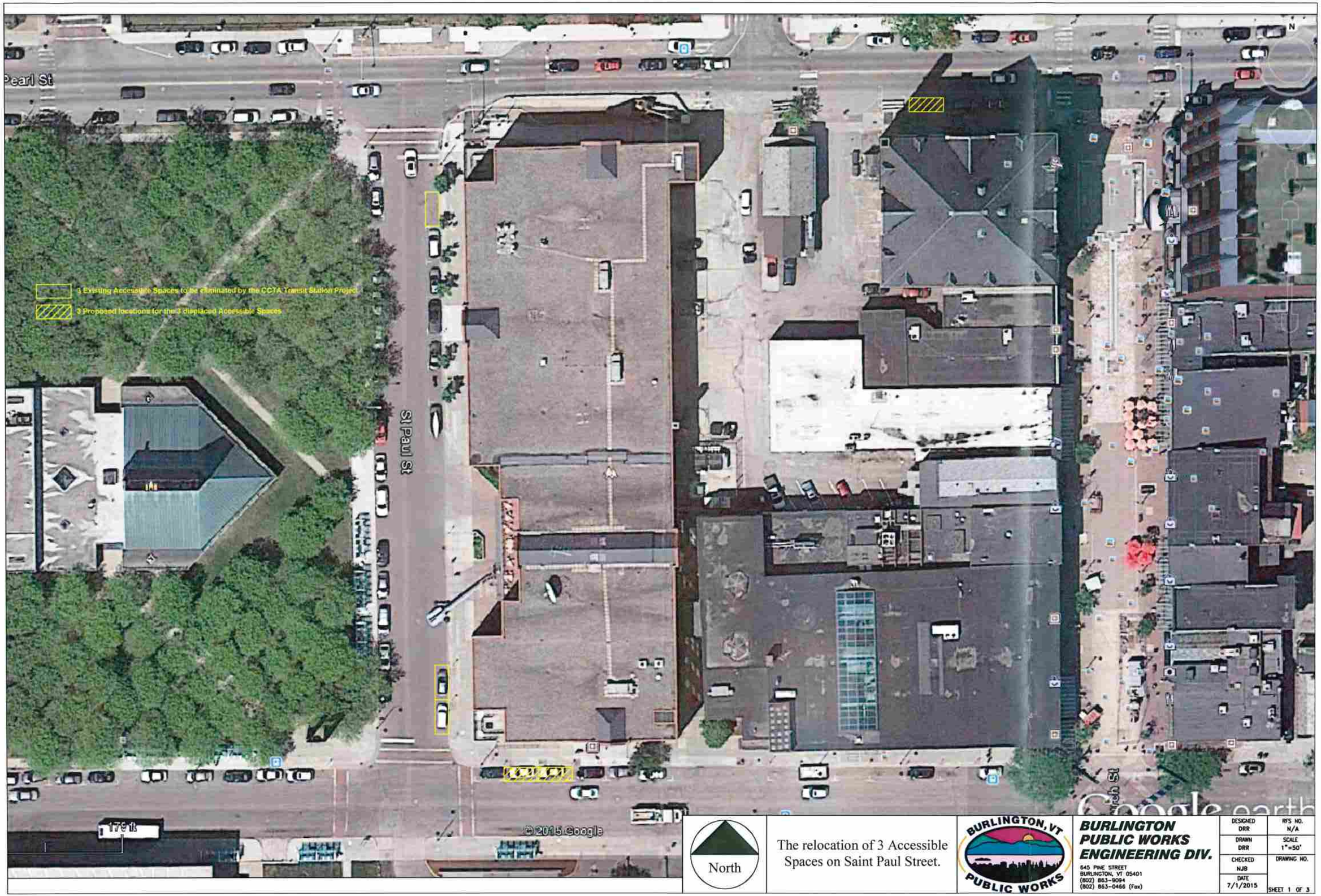
Conclusions:

The city has established transit services as a priority. Given its degree of importance the proposed Downtown Transit Center was approved by council to be located on St. Paul Street. To accommodate the facility public on-street parking needed to be displaced. Of particular importance is the need to accommodate people with disabilities, especially those seeking to access the state office building on St. Paul Street. Working closely with the State of Vermont Buildings and Ground we have prepared a proposed solution to accommodate the disabled community. We are seeking your approval and support for the proposed solution.

Recommendations:

Staff recommends that the Commission adopt the relocation of the three van accessible spaces on Saint Paul Street to the following locations:

- On the south side of Pearl Street in front of 151 Pearl Street.
- On the north side of Cherry Street in the first space east of Saint Paul Street after the completion of the CCTA Transit Station construction.
- On the north side of Cherry Street in the second space east of Saint Paul Street after the completion of the CCTA Transit Station construction.



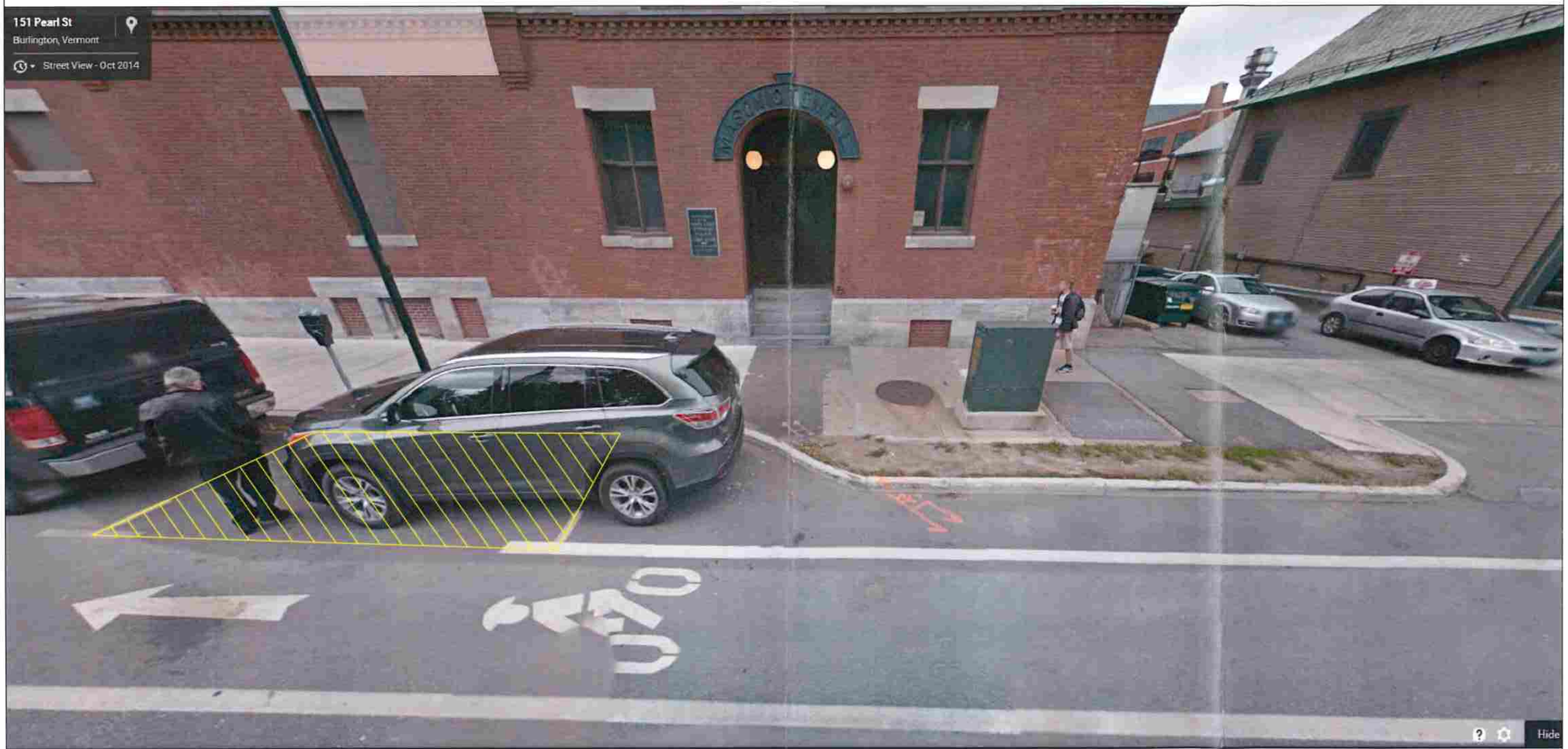
North

The relocation of 3 Accessible Spaces on Saint Paul Street.

BURLINGTON, VT PUBLIC WORKS

BURLINGTON PUBLIC WORKS ENGINEERING DIV.
645 PINE STREET
BURLINGTON, VT 05401
(802) 863-9094
(802) 863-0466 (Fax)

DESIGNED DRR	RFS NO. N/A
DRAWN DRR	SCALE 1"=50'
CHECKED NJB	DRAWING NO.
DATE 7/1/2015	SHEET 1 OF 3

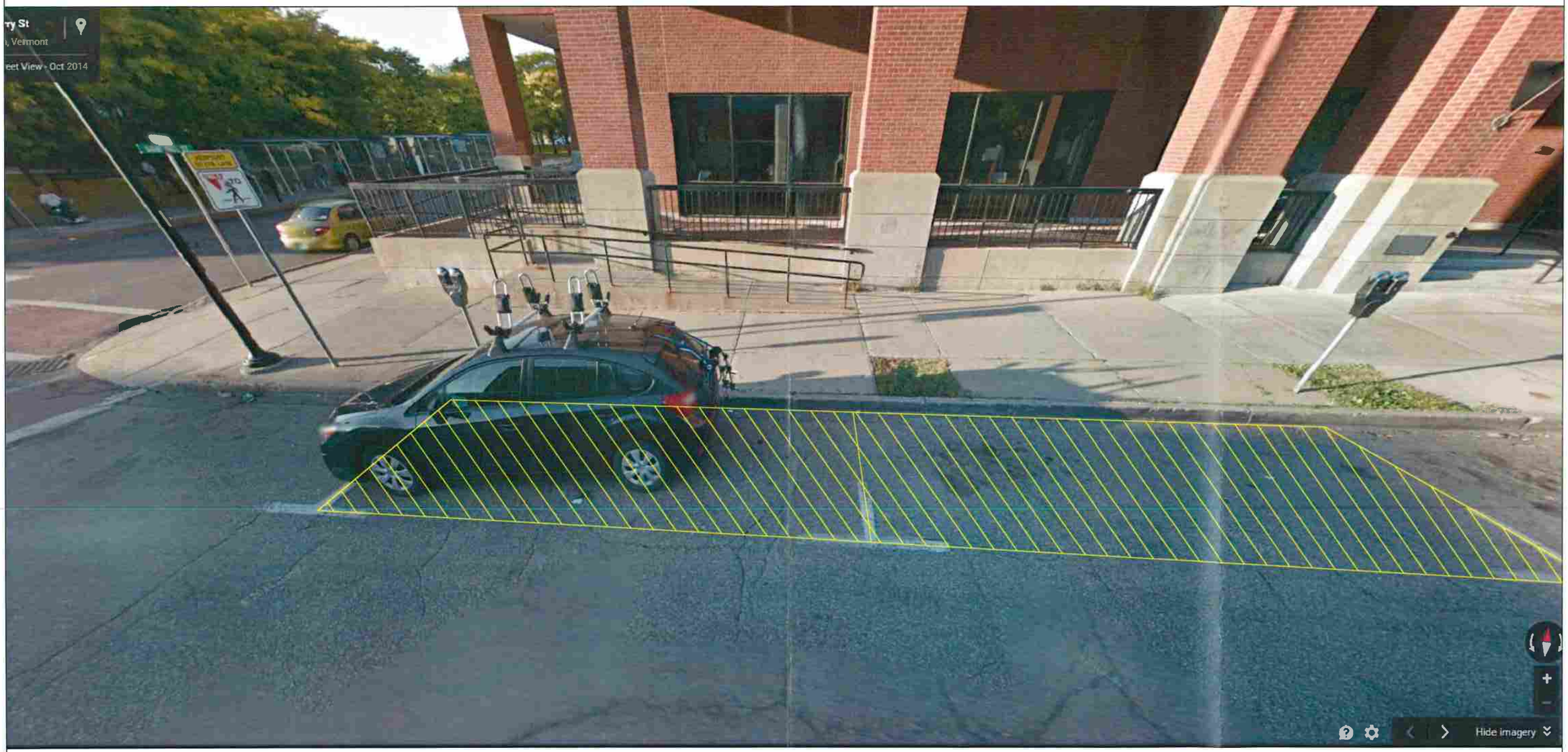


North

Proposed Accessible Space in front of 151 Pearl Street

BURLINGTON PUBLIC WORKS ENGINEERING DIV.
645 PINE STREET
BURLINGTON, VT 05401
(802) 863-9094
(802) 863-0466 (Fax)

DESIGNED DRR	RFS NO. N/A
DRAWN DRR	SCALE NTS
CHECKED NJB	DRAWING NO.
DATE 7/1/2015	SHEET 2 OF 3



North

Two Proposed Accessible Spaces on Cherry Street

BURLINGTON, VT PUBLIC WORKS

BURLINGTON PUBLIC WORKS ENGINEERING DIV.

645 PINE STREET
BURLINGTON, VT 05401
(802) 863-9094
(802) 863-0466 (Fax)

DESIGNED DRR	RFS NO. N/A
DRAWN DRR	SCALE NTS
CHECKED NJB	DRAWING NO.
DATE 7/1/2015	SHEET 3 OF 3

Proposed Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way

July 26, 2011

UNITED STATES ACCESS BOARD
A FEDERAL AGENCY COMMITTED TO ACCESSIBLE DESIGN

shall provide a minimum clear space complying with R404 entirely within the shelter. Where seating is provided within transit shelters, the clear space shall be located either at one end of a seat or shall not overlap the area within 460 mm (1.5 ft) from the front edge of the seat. Environmental controls within transit shelters shall be proximity-actuated. Protruding objects within transit shelters shall comply with R402.

Advisory R308.2 Transit Shelters. The clear space must be located entirely within the transit shelter and not interfere with other persons using the seating.

R309 On-Street Parking Spaces

R309.1 General. On-street parking spaces shall comply with R309.

Advisory R309.1 General. R214 specifies how many accessible parking spaces must be provided on the block perimeter where on-street parking is marked or metered. Accessible parking spaces must be identified by signs displaying the International Symbol of Accessibility (see R211.3 and R411). Accessible parking spaces should be located where the street has the least crown and grade and close to key destinations.

R309.2 Parallel Parking Spaces. Parallel parking spaces shall comply with R309.2.

Advisory R309.2 Parallel Parking Spaces. The sidewalk adjacent to accessible parallel parking spaces should be free of signs, street furniture, and other obstructions to permit deployment of a van side-lift or ramp or the vehicle occupant to transfer to a wheelchair or scooter. Accessible parallel parking spaces located at the end of the block face are usable by vans that have rear lifts and cars that have scooter platforms.

R309.2.1 Wide Sidewalks. Where the width of the adjacent sidewalk or available right-of-way exceeds 4.3 m (14.0 ft), an access aisle 1.5 m (5.0 ft) wide minimum shall be provided at street level the full length of the parking space and shall connect to a pedestrian access route. The access aisle shall comply with R302.7 and shall not encroach on the vehicular travel lane.

Advisory R309.2.1 Wide Sidewalks. Vehicles may park at the curb or at the parking lane boundary and use the space required by R309.2.1 on either the driver or passenger side of the vehicle to serve as the access aisle.

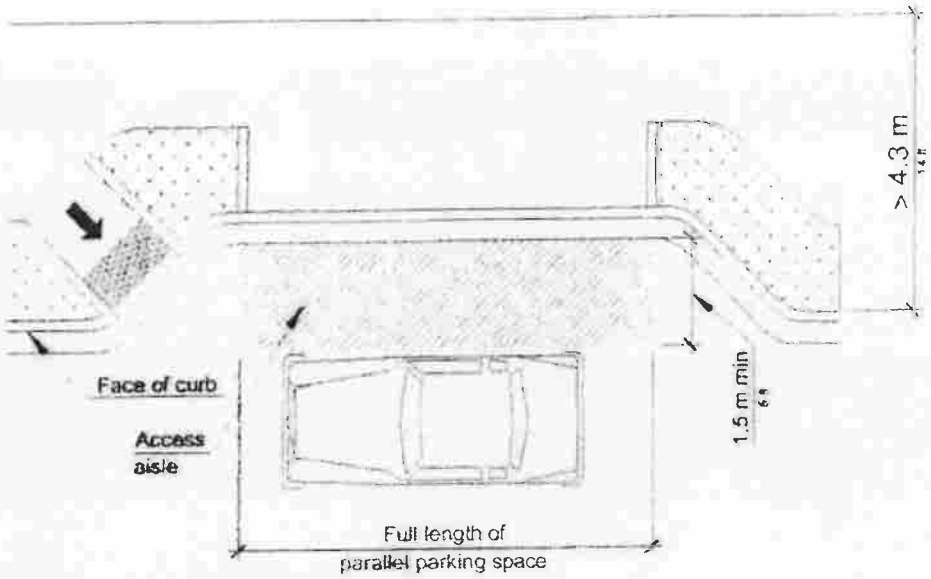


Figure R309.2.1
Wide Sidewalks

R309.2.1.1 Alterations. In alterations where the street or sidewalk adjacent to the parking spaces is not altered, an access aisle shall not be required provided the parking spaces are located at the end of the block face.

R309.2.2 Narrow Sidewalks. An access aisle is not required where the width of the adjacent sidewalk or the available right-of-way is less than or equal to 4.3 m (14.0 ft). When an access aisle is not provided, the parking spaces shall be located at the end of the block face.

Advisory R309.2.2 Narrow Sidewalks. Vehicle lifts or ramps can be deployed on a 2.4 m (8.0 ft) sidewalk if there are no obstructions.

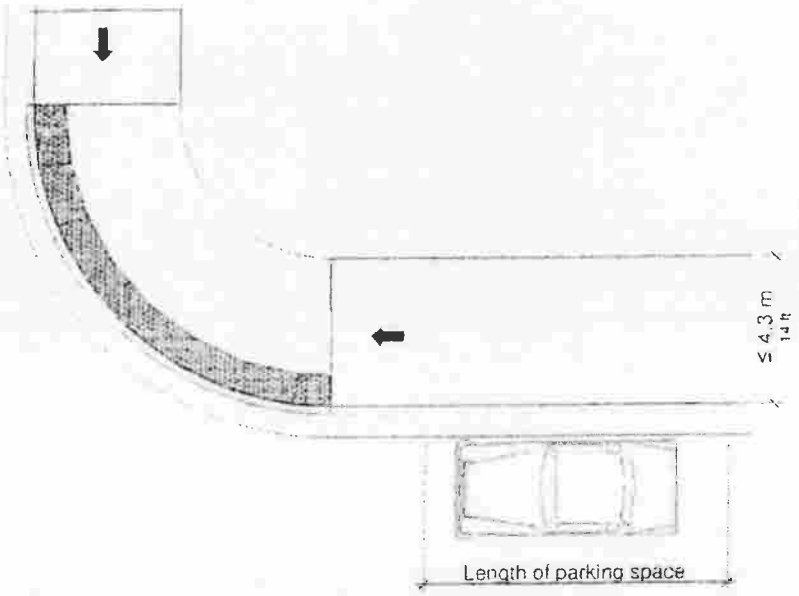


Figure R309.2.2
Narrow Sidewalks

R309.3 Perpendicular or Angled Parking Spaces. Where perpendicular or angled parking is provided, an access aisle 2.4 m (8.0 ft) wide minimum shall be provided at street level the full length of the parking space and shall connect to a pedestrian access route. The access aisle shall comply with R302.7 and shall be marked so as to discourage parking in the access aisle. Two parking spaces are permitted to share a common access aisle.

Advisory R309.3 Perpendicular or Angled Parking Spaces. Perpendicular and angled parking spaces permit the deployment of a van side-lift or ramp.

MEMORANDUM

June 7, 2015

TO: Public Works Commission

FROM: Damian Roy, DPW Engineering Technician DRR

CC: Norman Baldwin, City Engineer
Chapin Spencer, Director of Public Works

RE: 257 Driveway Encroachment and 258 North Winooski Loading Zone Requests

---

Background:

The Department of Public Works received a request from Pamela Smith of 257 North Winooski Avenue regarding inadequate site distances when exiting her driveway. This driveway is adjacent to, and in shared use with, the McClure Multi-Generational Center which houses Champlain Senior Center and Outright Vermont. Ms. Smith states that vehicles parked on the street tend to park too close the driveway making exiting the driveway challenging as there are inadequate site distances between the exiting vehicle and oncoming traffic causing an unsafe condition. This condition is most prevalent to the northeast where cars parked on the left when exiting create the greatest hazard. Ms. Smith would like to restrict on-street parking adjacent to the driveway at 257 North Street in order to increase the site distances when exiting the driveway.

Staff also received a call from Justin Dextradeur of Redstone Vermont Developers representing Kortnee Bush, owner of Butch & Babes restaurant located on the first floor of 258 North Winooski Avenue, requesting the installation of a Loading/Unloading Zone in front of her business on the east side of the street. Ms. Bush states that delivery trucks serving her business have been using the parking lot between 258 N. Winooski Ave and the Vermont Legal Aid building at 264 N. Winooski Ave causing challenges for upstairs tenants of 258 N. Winooski Ave and employees of Vermont Legal Aid. 264 N. Winooski Ave is a historic building and delivery trucks parking adjacent to it has raised concern for possible damage to the building. Ms. Bush states that within the first two weeks opening her business that an incident occurred with a delivery truck striking the historic building resulting in property damage. As Vt. Legal Aid owns a portion of the parking lot next to their building they will no longer allow commercial delivery trucks to enter the parking lot.

SLS 7-8-15

Staff presented Ms. Smith's request to the May 2015 Commission where the Commission agreed with staff's recommendation to restrict parking adjacent to the driveway. However Ms. Smith's request is being re-evaluated as it was not considered within the scope of the loading zone request directly across the street. These two requests represent significant changes to on-street parking for this block of N. Winooski Ave. and should be considered simultaneously when balancing the different parking needs for residents and businesses.

Observations:

North Winooski Ave is a mixed use, forty (40) foot wide two-way arterial street running in a southwest to northeast direction with moderate to high traffic volumes with mainly unrestricted parking on both sides. On-street parking is heavily utilized by residents and area businesses. There are seven (7) commercial buildings on the block of North Winooski Avenue between Decatur Street and Archibald Street and ten (10) residential buildings. One of these residential buildings includes twenty-four (24) units and provides twenty-four (24) off-street parking spaces for the tenants. Another similar residential building is currently in construction with the same number of units and provides the same number of off-street parking. All on-street parking on this block is unrestricted with the exception of two (2) accessible spaces and one (1) 15-minute space. There is no existing loading zone to serve the businesses on this block of North Winooski Avenue.

The parking lot between 258 and 264 North Winooski Avenue has a twenty-four (24) foot travel lane which immediately abuts the Vt. Legal Aid building. Vt. Legal Aid's property line is located nine (9) feet from the building accounting for nine (9) feet of this travel lane. Champlain Housing who owns 264 N. Winooski had initially agreed to let delivery trucks enter the parking lot and park on their portion of the travel lane. When delivery trucks parked as close as possible to the Vt. Legal Aid building tenants of 258 N. Winooski could just barely manage to enter and exit their parking spaces. The Butch & Babes restaurant has been in operation for one year, in this time there has been one incident where a delivery truck has struck the Vt. Legal Aid building causing damage. This has resulted in Champlain Housing no longer allowing delivery trucks to use their portion of the parking lot. Ms. Bush states that her business receives four (4) to five (5) deliveries a day from eight (8) different vendors, some vendors using large delivery trucks over fifty (50) feet long.

Initial public outreach showed a mix of support and opposition for an on-street loading/unloading zone from both residents and businesses. On June 30th staff held a community meeting at the Champlain Senior Center with residents and business representatives from this block of N. Winooski Ave. During the meeting participants respectfully voiced their concerns and perspectives. By the end of the meeting staff, residents, and business representatives reached a resolution that was agreeable to all present parties. *Please see the attached drawings showing the current on-street parking, parking lot layout, and the attached email documents from residents.*

Conclusion:

This block of N. Winooski Ave. provides access to residential and commercial properties. Most commercial properties on the block have expressed support for installing a loading zone

with Butch & Babe's Restaurant and Dolan's Automotive expressing dire need. Currently delivery trucks must double park in the travel lanes creating traffic congestion and safety hazards. Due to the mixed-use nature of this section of North Winooski Ave, Staff concludes that on-street parking should reflect the balance of residential and commercial use. Given the level of positive community support, Staff recommends installing the truck loading zone in front of 258 North Winooski Avenue with the specified time limits agreed upon by the residents and businesses of North Winooski Avenue.

The driveway exiting the Champlain Senior Center is challenged by inadequate sight distances while being used heavily by residents sharing the driveway along with patrons and staff of the McClure Muli-Generational Center. In the May Commission, Staff recommended restricting two parking spaces on either side of this driveway to create 120 feet of sight distance to the north and 105 feet of sight distance to the south. After the community meeting it became clear that the main challenges when exiting this driveway was to the north and that only restricting parking by one space to the north and not restricting any spaces to the south would be sufficient in creating a safe exiting condition. This alteration was discussed and approved of by Ms. Smith and the rest of the community and is seen as a balance between creating a safe condition for those using the driveway and maintaining unrestricted on-street parking for other residents and businesses.

Recommendation:

Staff recommends that the commission adopt:

- The installation of a sixty (60) foot Truck Loading Zone in effect from 8:00am to 10:00am and again from 2:00pm to 4:00pm Monday through Friday on the east side of North Winooski Avenue in front of 258 North Winooski Avenue.

- The prohibition of one on-street parking space immediately north of the driveway serving 257 North Winooski Avenue and the Champlain Senior Center.

SCS 7-8-15

Requests for Service (/Main.aspx)

#4843 Assigned Investigation

Technical Services | Traffic Requests

Location: 257 North Winooski Ave

Ms. Smith called to express concern that she has very limited visibility when pulling out of her driveway. She"d like the city to evaluate the situation and place "No Parking" signs adjacent to her drive so there is greater visibility.

Attachments

No Attachments

Browse... No file selected.

Upload Attachment

Assigned to: Damian Roy **Requested by:** Pamela Smith

Opened: 7/25/2014 **Entered By:** Chapin Spencer

Due: 8/24/2014

Work History Add Work History

Date	Staff Person	Description
07/08/2015	Damian Roy	This request has been bundled with the loading zone request on N Winooski Ave. Both requests are to be presented at the July Commission. Details
05/21/2015	Damian Roy	Request Status Changed from New to In Construction Details
05/21/2015	Damian Roy	Staff presented this item to the May Commission where it was approved to restrict parking adjacent to this driveway. Will close out when signs are installed. Details
04/29/2015	Damian Roy	Staff visited the site at the recommended time indicated by Ms. Smith. Warrants were not met during this time frame. Staff visited the site again to observed the peak hours of 4:00pm to 6:00. Within this time frame there were 27 vehicles observed exiting during a 60 minute period. Details

4/28/15

Vehicles exiting 205 N. Wiaoski Avenue

Start time: 4:00 pm

4:04 - 1	5:32 - 1
4:22 - 1	5:34 - 1
4:26 - 1	5:35 - 1
4:29 - 1	5:36 - 11
4:30 - 1	5:39 - 1
4:31 - 1	5:41 - 11
4:32 - 11	5:58 - 1
4:33 - 1	
4:43 - 11	End time: 6:00 pm
4:44 - 111	
4:52 - 1	
4:59 - 1	
5:07 - 1	27 vehicles observed exiting between
5:09 - 1	4:43 pm and 5:41 pm.
5:14 - 1	
5:17 - 11	
5:18 - 1	
5:20 - 1	
5:27 - 1	
5:29 - 11	
5:30 - 1	
5:31 - 1	

TABLE 5-E: BURLINGTON STREET CLASSIFICATION

STREET	LOCATION
Major Streets	
Arterials	
Champlain Park Way	South Burlington line to Battery Street
Winooski Valley Park Way	Manhattan Drive to Heineberg Bridge
Other Major Streets	
Battery Street	Park Street to Maple Street
Barrett Street	Colchester Avenue to Grove Street
Colchester Avenue	North Prospect Street to city limits
East Avenue	Colchester Avenue to Main Street
Elmwood Avenue	North Street to Pearl Street
Flynn Avenue	Pine Street to Shelburne Street
Grove Street	Barrett Street to city limits
Hyde Street	South Willard Street to Riverside Avenue
Intervale Avenue	Riverside Avenue to North Street
Ledge Road	South Prospect Street to Shelburne Road
Main Street/U.S. 2	Battery Street to city limits
Manhattan Drive	Park Street to Spring Street
Mansfield Avenue	North Street to Colchester Avenue
Maple Street	Battery Street to South Prospect Street
North Avenue	Plattsburg Avenue to Sherman Street
North Champlain Street	Manhattan Drive to Pearl Street
North Prospect Street	Riverside Avenue to Pearl Street
North Union Street	North Winooski Avenue to Pearl Street
North Willard Street	Shelburne Street to Hyde Street
North Winooski Avenue	Riverside Avenue to Pearl Street
Oak Street	Manhattan Drive to Intervale Avenue
Park Street	Manhattan Drive to Pearl Street
Pearl Street	Battery Street to North Prospect Street
Pine Street	Main Street to Queen City Park Road
Plattsburg Avenue	North Avenue to Heineberg Bridge
Riverside Avenue	Intervale Avenue to Winooski Bridge
Saint Paul Street	Main Street to South Union Street
Shelburne Street/U.S. 7	South Union Street to city limits
Sherman Street	Park Street to North Avenue
South Prospect Street	Pearl Street to Ledge Road
South Union Street	Pearl Street to Saint Paul Street
South Willard Street	Shelburne Street to Hyde Street
South Winooski Avenue	Pearl Street to Saint Paul Street
Collector Streets	
Appletree Point Road	Staniford Road to private road
Archibald Street	Spring Street to North Prospect Street
Austin Drive	South Cove Road to Home Avenue
Bank Street	South Winooski Avenue to Pine Street
Birchcliff Parkway	Pine Street to Shelburne Street
Cherry Street	Battery Street to South Winooski Avenue
College Street	Lake Street to South Prospect Street
Ethan Allen Parkway	North Avenue to Gazo Avenue
Flynn Avenue	Oakledge Park to Pine Street
Heineberg Road	North Avenue to Farrington Parkway
Home Avenue	Austin Drive to Shelburne Street
Howard Street	Pine Street to Saint Paul Street
Industrial Drive	Queen City Park Road to Home Avenue
Lakeside Avenue	Central Avenue to Pine Street
Locust Street	Pine Street to Shelburne Street
North Avenue	Plattsburg Avenue to Derway Drive
North Street	Mansfield Avenue to North Avenue
Pine Street	Bank Street to Main Street
Prospect Parkway	South Prospect Street to Shelburne Street
Saint Paul Street	Bank Street to Main Street
Shore Road	North Avenue to Crescent Beach Road
Spring Street	Manhattan Drive to Archibald Street
Staniford Road	North Avenue to Cumberland Road
Starr Farm Road	North Avenue to Curtis Avenue
Village Green	North Avenue to Rivermount Terrace
Local Streets	
All other public streets	

CITY OF BURLINGTON DEPARTMENT OF PUBLIC WORKS

Guidelines to Prohibiting Parking Around Residential and Commercial Driveways

11/28/2012

List of Figures

1.0 Introduction

1.1 Use of Guideline

The purpose of this guideline is to ensure that driveways are treated consistently throughout the city of Burlington, by providing guidance on prohibiting of on street parking.

It must be recognized that not all situations can be adequately addressed in this guideline; therefore engineering judgment must be used at all times.

Before any parking is prohibited on any street, the engineer must review the plan of the proposed prohibition to ensure that is conforms to this guideline. Parking prohibitions shall only go into effect after they are passed by the Department of Public Works Commission. Petitions or requests to prohibit parking to improve sight distance will only consider for the direction of travel being requested.

2.0 Prohibiting Parking

2.1 Arterial Roadways

Arterial Roadways are moderate to high-capacity roadways that are immediately below a highway's level of service. They are main entry and exits to the City and have many intersections with collector and local roads. Vehicles travel faster on arterial roadways than on collector and local roads. Some examples of arterial roadways in the City of Burlington are Main Street, Pine Street, and North Avenue.

2.1.1 Prohibiting Parking

This standard is applicable for all driveways on Arterial Roadways serving 20 or more vehicles in the peak hour. An engineering study, using the accepted criterion, will be done to determine the parking setback around the driveway. Once a study is completed the engineer has the authority to recommend the correct sight distance setbacks in the direction of travel seeking consideration.

2.2 Collector Roadways

Collector roadways are low to moderate-capacity roadways which are below highways and arterial roadways in level of service. Collector roadways usually bring traffic from local roadways to arterial roadways. Some examples of collector roadways in the City of Burlington are Maple Street, Loomis Street, and Ethan Allen Parkway.

2.2.1 Prohibiting Parking

This standard is applicable for all driveways on collector roadways serving 40 or more vehicles in the peak hour. An engineering study, using the accepted criterion, will be done to determine the parking setback around the driveway. Once a study is complete the engineer has the authority to recommend the correct sight distance setbacks in the direction of travel seeking consideration.

3.0 Sight Distance Setbacks

3.1 Sight Distance Triangle

When determining the correct sight distance setback for each driveway one must conduct a sight distance study. In Figure 1, below, X represents the needed stopping sight distance for a street with a specific speed limit. From the 2004 AASHTO "A policy on Geometric Design of Highways and Streets." a roadway with a speed limit of 25 MPH requires a stopping sight distance, X, of 155 ft. As the speed limit increases the required stopping sight distance increases. The figure below shows that the shorter the sight distance setback is the shorter the stopping sight distance.

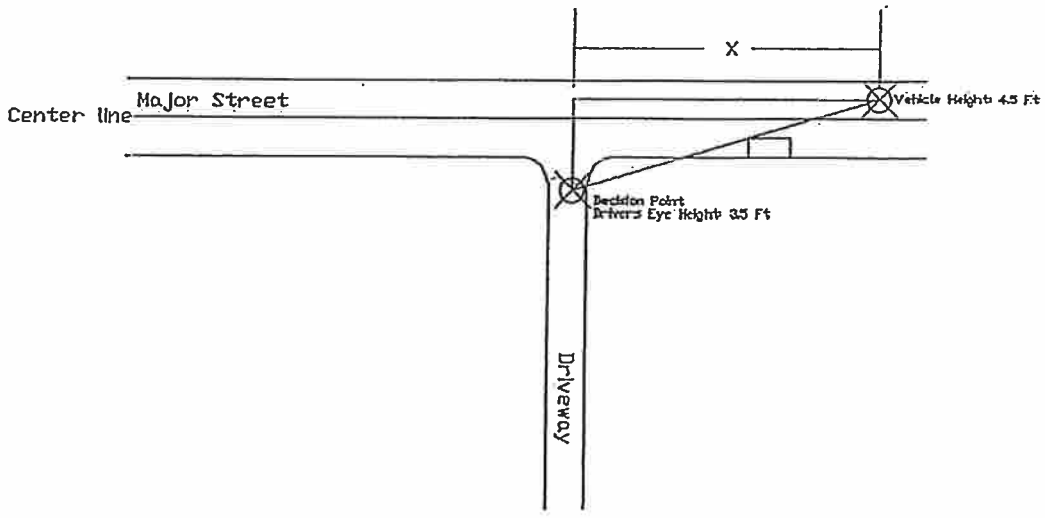


Figure 1: Sight Distance Triangle

4.0 Exceptions

4.1 Downtown Corridor

This guideline includes all of the city of Burlington but the downtown corridor. This section includes the interior of Pearl Street, South Winooski Avenue, Main Street to Battery Street. See the Figure below.

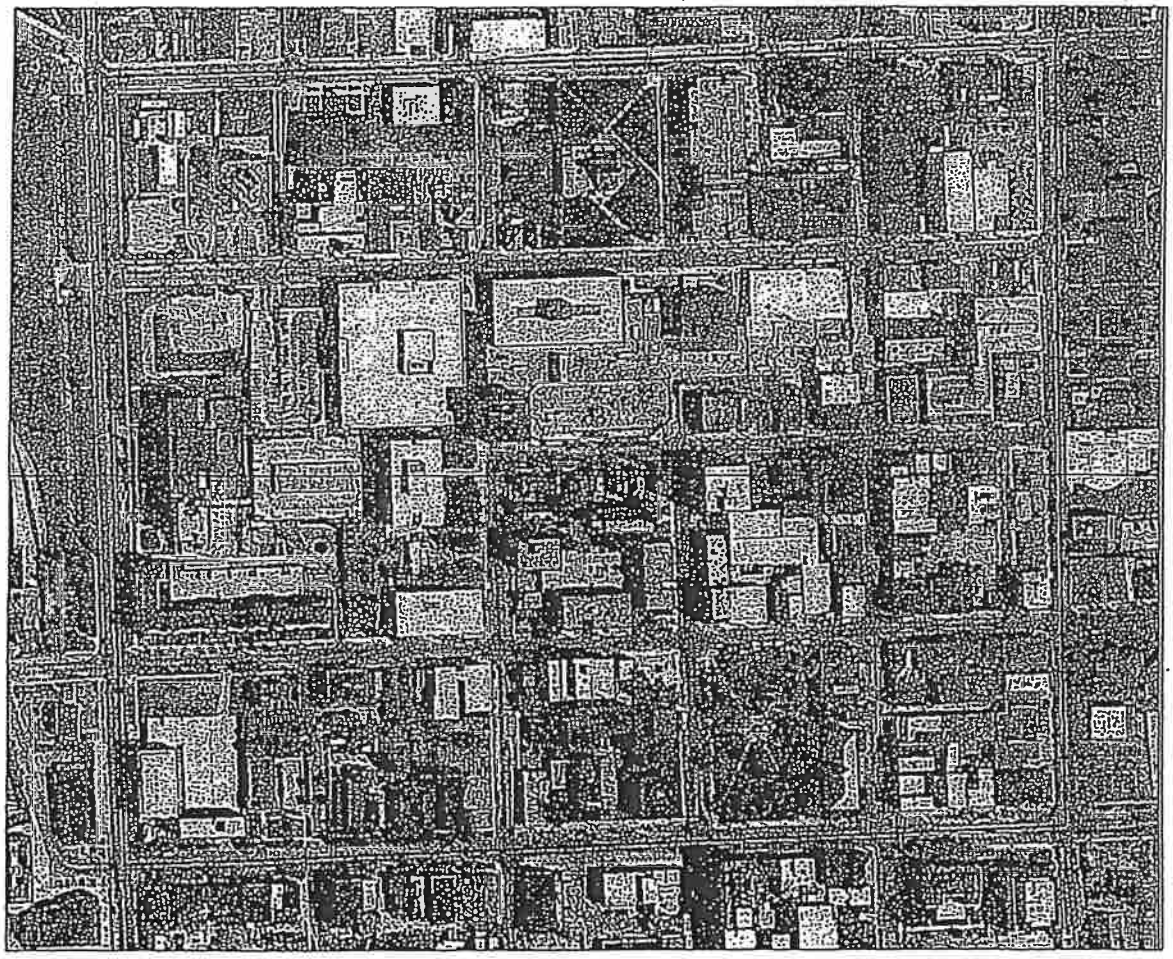


Figure 2: The Downtown Corridor

The parking guidelines described would be applied in all areas of the city except downtown core described above. The streets bounding this area of exception will be included in these guidelines.

Damian Roy

From: Pamela J. Smith <psmith58vt@comcast.net>
Sent: Tuesday, May 12, 2015 6:46 AM
To: Damian Roy
Subject: Re: Driveway Encroachment @ 257 N. Winooski Ave.

Dear Damian,

How wonderful of you for caring to make sure our bikers and pedestrians are safer. Over the ten years I have been living in my lovely apartment I have witnessed several very close dangerous encounters at this driveway. Thank you for your cooperation in protecting the citizens of our active community.

Pamela J. Smith

From: "Damian Roy" <droy@burlingtonvt.gov>
To: psmith58vt@comcast.net
Sent: Monday, May 11, 2015 10:40:20 AM
Subject: Driveway Encroachment @ 257 N. Winooski Ave.

Dear Pam,

I wanted to write to inform you that your request to restrict parking adjacent to your driveway will be presented to the Public Works Commission on Wednesday May 20th at 6:30pm at the 645 Pine Street Public Works building. I am pleased to tell you that I visited the site a second time on April 28th during the peak hours of 4:00pm and 6:00pm and observed 27 vehicles exiting the driveway within a one hour time frame. Because this meets DPW's warrants, I plan to recommend that the Commission approves restricting on-street parking adjacent to the driveway thus increasing sight distances to oncoming traffic.

You are welcome to attend the Commission Meeting if you wish. In addition to your request, driveway encroachment in the city as a whole will be examined as well.

Best,
Damian

Damian Roy, Engineering Technician
Burlington Public Works Department
645 Pine St. Burlington VT 05401
Desk: 802.865.5832
Cell: 802.598.8356
Email: droy@burlingtonvt.gov
Web: www.burlingtonvt.gov/dpw

Damian Roy

From: Pamela J. Smith <psmith58vt@comcast.net>
Sent: Wednesday, May 13, 2015 7:56 AM
To: Damian Roy
Subject: SIGN

I would like to attend the meeting on 5/20 at 6:30 however, I am at a DAT meeting with American Red Cross and I work at the Red Cross all day Thursdays as a volunteer in finance. It would be difficult for me to attend. The sign of "NO PARKING HERE TO CORNER" is such an important safety feature for me that I am worried that if I do not attend the meeting to voice my concerns the sign might not be approved. I did write a letter prompting the investigation into the safety which could be read on my behalf during this meeting.
Is it necessary for me to attend in person for the approval of the sign or do you need me to change my plans and attend next week?
If you require more written request from me I would be willing is needed to approve the sign. Let me know please if you have everything you need from me as an active citizen of my neighborhood.

Thank You for all your cooperation.

Pamela J. Smith
259 N. Winooski Avenue #3
Burlington, VT

Damian Roy

From: Pamela J. Smith <psmith58vt@comcast.net>
Sent: Thursday, May 21, 2015 6:45 AM
To: Damian Roy

Dear Damian,

I am reaching out to you this morning to see how the meeting went last night. Was the sign stating NO PARKING HERE TO CORNER approved? I am anxious to know if our task of making the neighborhood safer has been realized. I am at the Red Cross Disaster volunteering as I do twice a week so if you could please let me know when you have the decision I would appreciate. Enjoy your day.

Pamela J Smith
259 N Winooski Avenue
Burlington VT

Damian Roy

From: Pamela J. Smith <psmith58vt@comcast.net>
Sent: Wednesday, June 17, 2015 7:57 AM
To: Damian Roy
Cc: Norm Baldwin
Subject: Re: "No Parking Here to Corner: signs @ 257 N Winooski Ave

Damian,

I am extremely disappointed and concerned. The requirement of making this access of 20 plus vehicles an hour far meet the requirement of a safe place. I must inform you officially that I will be holding the City Burlington legally responsible of any injury to myself or any damage to my vehicle due to the inablility to see any oncoming vehicles, bicycles, wheelchairs, skateboarders that are in the street at the shared exit and entrance next to the Mcclure Multifunctional Center. As you yourself stated that the NO PARKING HERE TO CORNER sign in needed in this area as the count of vehicles meet the requirements of putting this sign here. I will keep all my correspondence regarding this extremely dangerous exit and entrance drive and hope that noone is either killed or injured.

Rest assured that I will not hesitate to take legal action in the unfortunate situation of any bodily or property damage that is related to the neglect of the City of Burlington actually recognizing and recommending a NO PARKING HERE TO CORNER sign. Regardless of any "checking with the neighbors" this hazardous drive has already met the requirements of the city. The City of Burlington has an obligation to putting this sign that has already been deemed necessary by the admission of the Public works department.

I will be giving all this information to the City of Burlington Mayor and the City Attorney for them to review and keep on record as the City will be responsible financially if anyone is injured due to the neglect of not putting the sign that has been committed to the residents that exit and enter 24 hours a day, seven days a week at this very dangerous drive that the City has documented and proven to be so

Let this be a official notification to the City of Burlington that I will hold the city responsible to take action immediately to prevent any further possibility of bodily and property injury.

Pamela J. Smith
259 North Winooski Avenue #3
Burlington Vermont 05401

RESIDENCE SINCE 4/2005

From: "Damian Roy" <droy@burlingtonvt.gov>
To: "Pamela J. Smith" <psmith58vt@comcast.net>
Cc: "Norm Baldwin" <nbaldwin@burlingtonvt.gov>, "Chapin Spencer" <cspencer@burlingtonvt.gov>
Sent: Tuesday, June 16, 2015 9:39:53 AM
Subject: "No Parking Here to Corner: signs @ 257 N Winooski Ave

Good morning Pamela,

I wanted to write you prior to anyone else concerning this as your request was evaluated first. It has been an exciting few weeks for me at DPW dealing with traffic requests for N Winooski Ave. It hasn't all gone smoothly or as planned. Friday I met with the City Engineer Norm Baldwin and the Director of Public Works Chapin Spencer regarding the loading zone request across the street from the Senior Center and how it relates to your driveway encroachment

request. Both requests were evaluated separately based on type of request. For your request, I did not notify other residents of N Winooski (between Archibald and Decatur) due to there being a pre-existing policy to evaluate such requests that did not include a public process. This was an error of judgement on my part. Regardless of there being a policy governing driveway encroachment requests I should have notified all interested parties so that a full public process could commence.

For the loading zone request, residents were notified and a significant debate for and against ensued. At this time, these other residents are unaware of your driveway request. So I think that you can begin to see the issue. With hot debate over losing 3 spaces on one side, we can't blind-side the same residents with a restriction right across the street which will cause them to lose 4 spaces.

The Public process must be restarted which will include your request into the conversation. Until we can have a communication with the residents on this block, your driveway request and the loading zone request will have to be put on hold. My goal is to complete this process and be ready to present to the July Public Works Commission.

I sincerely apologize for the delay and for my error in this process. I'm reminded of a saying "calm seas does not make a skilled sailor".

Write or call to discuss. I will be emailing the other residents I have email addresses for and flyering the neighborhood this week to possibly set up a public meeting if necessary.

Regards,
Damian

Damian Roy, Engineering Technician
Burlington Public Works Department
645 Pine St. Burlington VT 05401
Desk: 802.865.5832
Cell: 802.598.8356
Email: droy@burlingtonvt.gov
Web: www.burlingtonvt.gov/dpw

Damian Roy

From: Pamela J. Smith <psmith58vt@comcast.net>
Sent: Wednesday, June 24, 2015 12:08 PM
To: Damian Roy
Cc: Norm Baldwin
Subject: REQUEST FOR ALL RECORDS

Damian Roy,

I am requesting all the information that you have in your files of all my correspondence with Burlington Public Works regarding request of sign stating NO PARKING HERE TO CORNER in front of 257 North Winooski Avenue Burlington, Vermont.

It is important that the information includes the survey that you conducted of the access drive at Mcclure Multifunctional that revealed the amount of traffic meeting the criteria of putting up the requested sign due to the hazardous access.

It is important that the information includes the meeting of the the Burlington Public Works board that in fact approved the request of the NO PARKING HERE TO CORNER sign recognizing the hazard of this access drive by your own survey and approval.

This information has all been relayed to me by you Damian Roy and I wish to this up for my records going forward as these are admissions of the hazardous issues of this access drive.

I am requesting to pick this up on Friday, June 26, 2015 at Burlington Public Works. Let me know the time and where to go to obtain this requested information.

Thank You for your cooperation.

Pamela J. Smith
259 N. Winooski Avenue #3
Burlington, VT 05401

6597

CITY OF BURLINGTON

SERVICE REQUEST

Name and Address

Request Date: 04/06/2015
10:28 AM
Due Date: 4/13/2015

Name: Justin Dextradeur

Address: 210 College St, Ste 201

Phone Number: 734-9217 Email Address: justin@redstonevt.com

Request

Location: 258 No. Winooski Ave

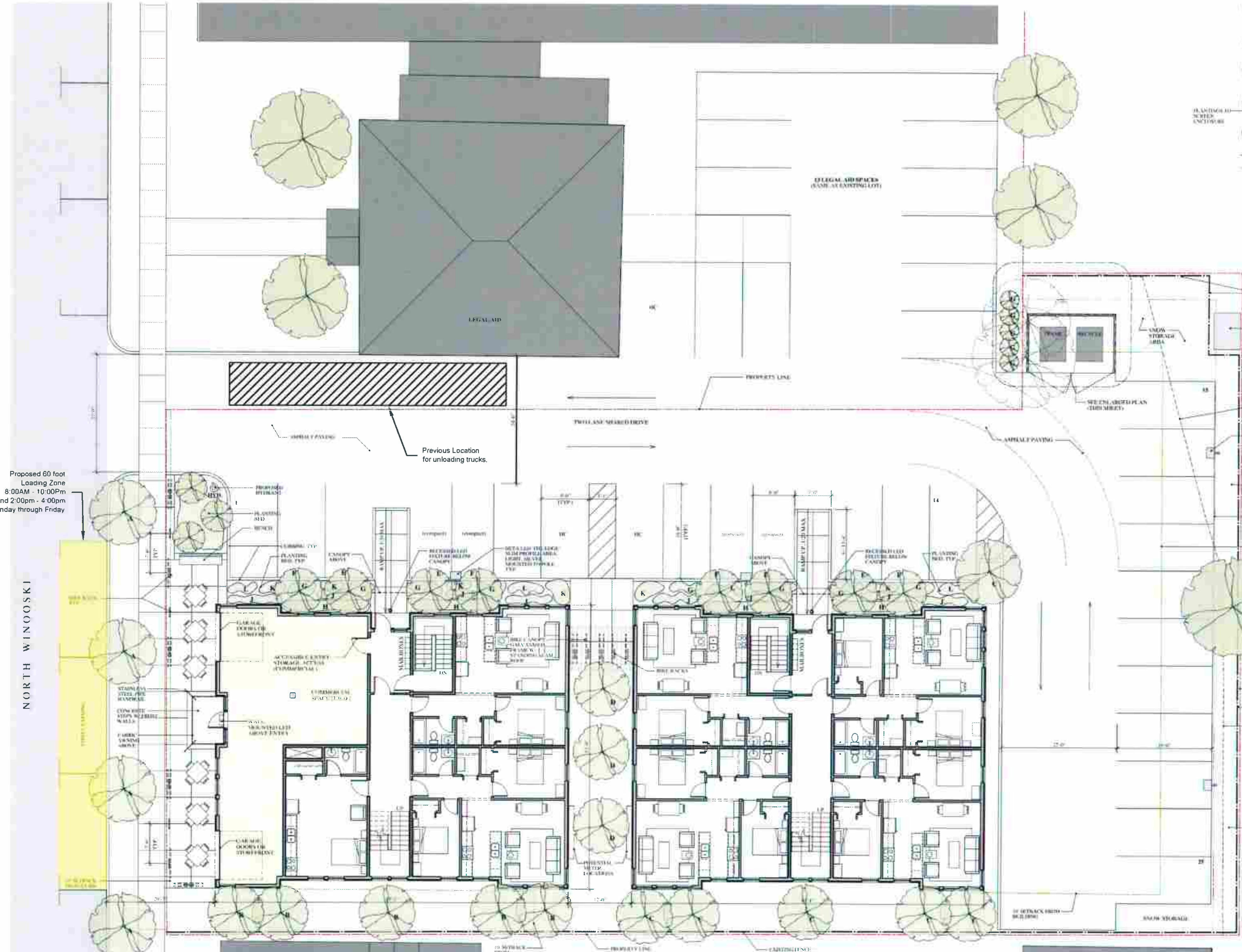
Request Description: Hi Joel – I'm writing because one of Redstone's new retail tenants (Butch & Babe's Restaurant) would like to request a part-day (8-2pm) truck loading space designated in front of their business at 258 North Winooski Avenue. The larger delivery trucks are finding it difficult to find contiguous street parking spaces near the building, and with a historic brick building sitting right up against our shared driveway with Vermont Legal Aid so it's not ideal to receive deliveries there (one careless driver could do some real damage). The tenant currently has two deliveries per week from a 52 ft long trailer and 8 deliveries from smaller vehicles 32 & 42ft each week, almost all of which are during the morning, with only the beer deliveries happening in the early afternoon. I've attached a site plan with the street parking in front of the building highlighted for context but hoping you can confirm the next steps for us to formally make this request of the Public Works Commission. Thanks – Justin

Assign History

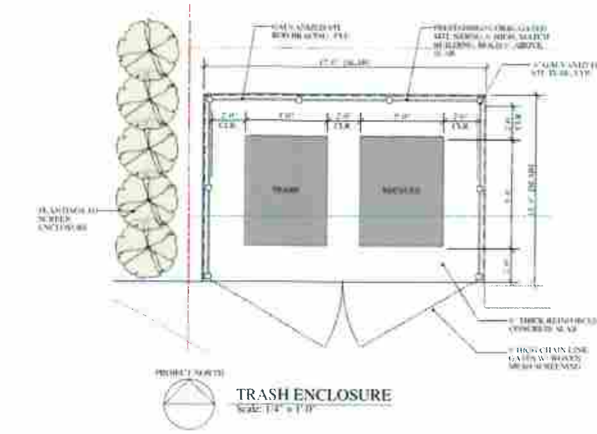
Date	Assigned To	Description
4/6/2015 10:28:49 AM	Damian Roy	Request Assigned

Work History

Date	Staff Person	Description
05/26/2015	Damian Roy	Staff has been in contact with Mr. Dextradeur via email (attached). Staff will work to have this item presented to the June PWC (Entered on 5/26/2015 10:57:24 AM by Damian Roy)



SITE PLAN
Scale: 1/8" = 1'-0"


TRASH ENCLOSURE
Scale: 1/4" = 1'-0"

SITE SUMMARY

EXISTING SITE

LOT SIZE: 21,332 sf

COVERAGE: 82%

PROPOSED SITE

LOT SIZE: 21,382

COVERAGE: 80%

FAR: 1.3

PARKING:

- 25 NEW SPACES (ONE PER DWELLING UNIT + 2 COMMERCIAL)
- 28 OUTDOOR BIKE RACK SPOTS (10 COVERED) + SECURED INDOOR BIKE STORAGE IN BASEMENT

BUILDING HEIGHT:

34'-11" AT HIGHEST POINT OF ROOF, AS MEASURED FROM EXISTING SIDEWALK (EXCLUDING ARCHITECTURAL SCREENS AT MECHANICAL EQUIPMENT)

AREA SUMMARY

WEST BUILDING:

- BASEMENT: 3447 GSF
- FIRST FLOOR: 3468 GSF
- SECOND FLOOR: 3468 GSF
- THIRD FLOOR: 3468 GSF

TOTAL WEST: 13,851 GSF

EAST BUILDING:

- BASEMENT: 3460 GSF
- FIRST FLOOR: 3481 GSF
- SECOND FLOOR: 3481 GSF
- THIRD FLOOR: 3481 GSF

TOTAL WEST: 13,903 GSF

TOTAL PROJECT AREA: 27,754 GSF

AREA ABOVE GRADE: 20,847 GSF

UNIT SUMMARY

WEST BUILDING:

[1] COMMERCIAL SPACE @ 996 SF

[1] STUDIO UNIT @ 355 SF
[1] ONE BEDROOM UNIT @ 602 SF
[2] TWO BEDROOM UNITS @ 696 SF
[3] TWO BEDROOM UNITS @ 722 SF
[2] TWO BEDROOM UNITS @ 739 SF
[2] TWO BEDROOM UNITS @ 780 SF

[12] TOTAL UNITS - WEST

EAST BUILDING:

[1] ONE BEDROOM UNIT @ 602 SF
[4] TWO BEDROOM UNITS @ 696 SF
[3] TWO BEDROOM UNITS @ 722 SF
[2] TWO BEDROOM UNITS @ 754 SF
[2] TWO BEDROOM UNITS @ 780 SF

[12] TOTAL UNITS - EAST

TOTAL PROJECT:

[1] COMMERCIAL SPACE
[1] STUDIO UNIT
[2] ONE BEDROOM UNITS
[20] TWO BEDROOM UNITS

[24] TOTAL UNITS

PLANTING SCHEDULE - TREES & SHRUBS

KEY	QTY	COMMON NAME	BOTANICAL NAME	SIZE	REMARKS
A	4	CELEBRATION RED MAPLE	ACER FREEMANII	3" CAL.	
B	5	RIVER BIRCH	BETULA NIGRA 'HERITAGE'	8' HT	MULTI-STEM
C	6	PRINCETON ELM	ULMUS AMERICANA 'PRINCETON'	2" CAL.	
D	3	HALKA LOCUST	GLEDITSIA TRIACANTHOS 'HALKA'	2" CAL.	MULTI-STEM
E	1	SERVICEBERRY	AMELANCHIER 'AUTUMN BRILLIANCE'	6' HT	
F	4	AMERICAN HORNBEAM	CARPINUS CAROLINIANA	2" CAL.	
G	5	ARBORVITAE	THUJA OCCIDENTALIS	6' HT	
X		(EXISTING TREE)			

PLANTING SCHEDULE - PERENNIALS

KEY	QTY	COMMON NAME	BOTANICAL NAME	SIZE	REMARKS
G	30	GERANIUM	GERANIUM [illegible]	2 YR	
H	32	HOSTA	HOSTA 'GOLD STANDARD'	2 YR	
J	42	LADY FERN	ATHYRIUM FELIX FEMINA	2 YR	
K	28	SOLOMON'S SEAL	POLYGONATUM ODORATUM	2 YR	
L	20	WOODLAND PHLOX	PHLOX STOLONIFERA	2 YR	

SMITH
ALVAREZ
SIENKIEWYCZ
ARCHITECTS
117 St. Paul Street
3rd Floor
Burlington, VT
05401

P: 802 • 863 • 2227
F: 802 • 863 • 0093

PROJECT TEAM

OWNER

256-262 N. WINOOSKI, LLC
P.O. BOX 1332
BURLINGTON, VT 05402

CONSTRUCTION MANAGER

NAYLOR & BREEN BUILDERS, INC.
2335 FRANKLIN STREET
BRANDON, VT 05733
P: 802-247-6527
F: 802-247-0948

CIVIL

KREBS & LANSING
164 MAIN ST
COLCHESTER, VT 05446
P: 802-878-0375
F: 802-878-9618

STRUCTURAL

RICHARD M. DOHERTY, P.E.
749 DORSET STREET, #6
SO. BURLINGTON, VT 05403
P: 802-660-9212

SAS PROJECT NO. 0338

PROJECT

260 NORTH WINOOSKI AVENUE

•

BURLINGTON, VT

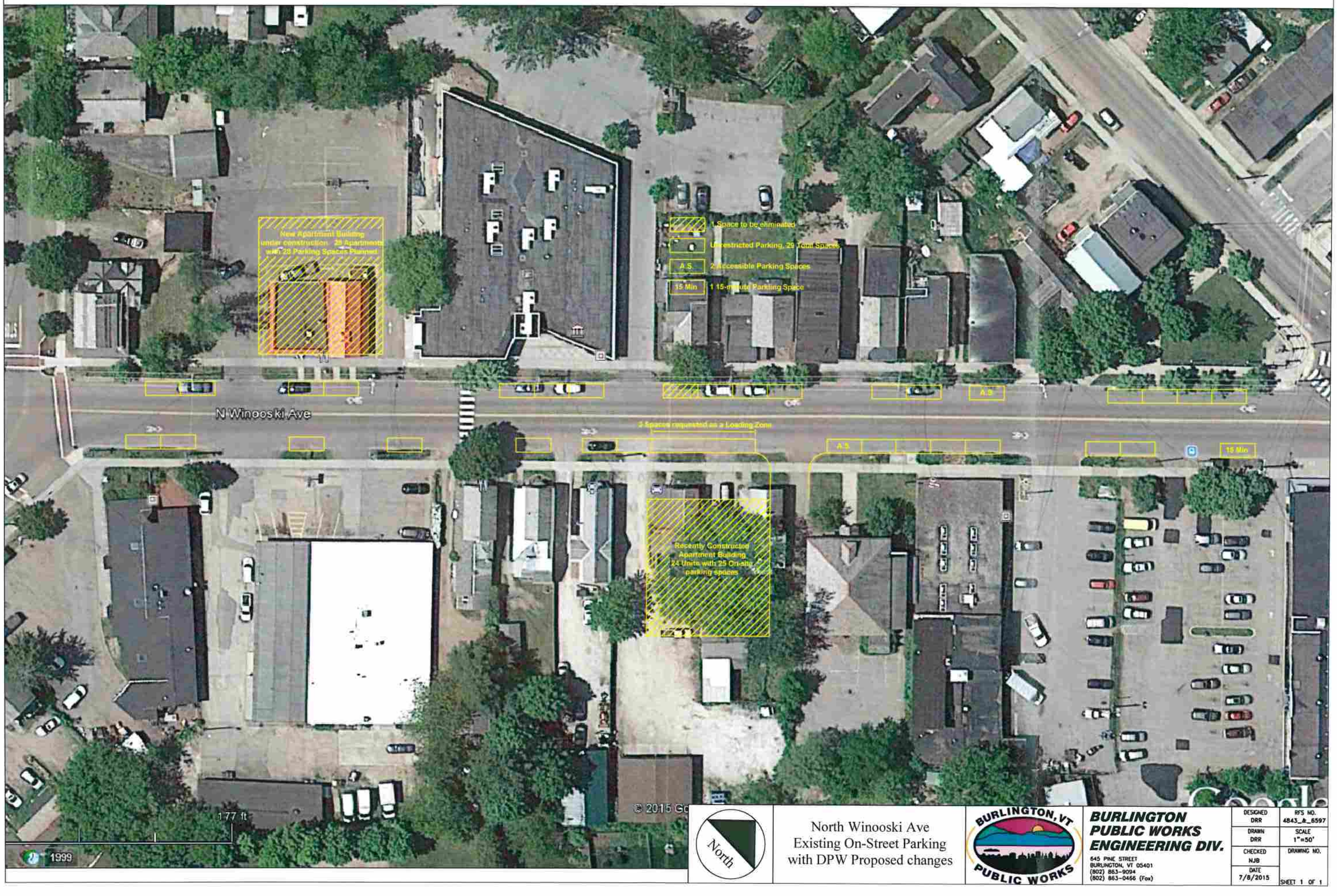
DATE: JUNE 14, 2013
SCALE: AS NOTED
CHECKED:
DRAWN:

REVISIONS

ZONING SUBMISSION

SITE PLAN / GROUND FLOOR PLAN

L-1.0



North

North Winooski Ave
Existing On-Street Parking
with DPW Proposed changes

BURLINGTON, VT PUBLIC WORKS

BURLINGTON PUBLIC WORKS ENGINEERING DIV.

645 PINE STREET
BURLINGTON, VT 05401
(802) 863-9094
(802) 863-0466 (Fax)

DESIGNED DRR	RFS NO. 4843_&_6597
DRAWN DRR	SCALE 1"=50'
CHECKED NJB	DRAWING NO.
DATE 7/6/2015	SHEET 1 OF 1

North Winooski Ave. Community Meeting 6/30/15

Please Sign In

Print Name	Email	Phone Number
Bonnie Campono	bonnie@champsenior.org	658-3585
Sarah Adams-Kollitz	Sadamskollitz@burlingtonchildrensspace.o	
Kim Ianelli	Kianelli@burlingtonvt.gov	658-1520 x 13
Justin Pentowder	justin@redshowert.com	802-734-9217
Kortnee Bush	kortneebush@gmail.com	773 919-9976
Jennifer Andrews	jandrews@vtlegalaid.org	802-863-5620
Carol Jenkins	cjenkins@vtlegalaid.org	802-863-5620
Pamela Smith	Psmith-58VT@comcast.net	802-658-262
Paul Schnabel	pschnabel@gmail.com	802-862-534
Chris Adams	Doconnell19@gmail.com	802-393-8450
Howard Dolan	Dolansauto@aol.com	802-658-3170
Shelly Pepin	Shellyp@HowardCenter.org	802 488-6562
Chris Pepin	ChrisP@Comcast.net	802 ~~658-3~~
Janay Dolan	DolansAuto@aol.com	~~658-3170~~ 893-7994
Kelly Meunier	elmwoodmeunier@yahoo.com	802-363-7796

City of Burlington
Department of Public Works

Technical Services Engineering Division
645 Pine Street, Suite A
Burlington, VT 05402
P 802-863-9094 / F 802-863-0466 / TTY 802-863-0450
www.burlingtonvt.gov/DPW

Memo

Date: *July 8, 2015*

To: *Public Works Commission*

From: *Nicole Losch, Transportation Planner*

Subject: *Draft Residential Parking Management Plan – discussion*

INTRODUCTION

Last February the Commission received an introduction to the Residential Parking Management Study, the goals of the effort, the results of our fall 2014 data collection efforts, examples of best practices from comparable communities, and an overview of the general strategies that were being considered.

Since February, we have refined the general strategies based on feedback from the Advisory Committee and the public. These strategies are included in our draft Residential Parking Management Plan, which will be introduced to the Commission for discussion and feedback.

The draft Residential Parking Management Plan is available to be downloaded or viewed online at http://parkburlington.com/residential-parking/residential-parking-management-plan/ (Chapter 5 contains the draft recommendations).

STATUS AND NEXT STEPS

1. At tonight's meeting the Commission will have an opportunity to react to the draft Plan and the draft recommendations and hear from the community who have helped shape and refine these concepts.
2. We will take the Commission's feedback, along with feedback from the Advisory Committee's July 7, 2015 meeting and public comments, and will revise the draft report.
3. The revised draft will be reviewed by the Advisory Committee at their final meeting.
4. The revised draft will be presented to the Commission for a decision at an upcoming meeting.

CITY OF BURLINGTON
DEPARTMENT OF PUBLIC WORKS

645 Pine Street, Suite A
Burlington, VT 05401
802.863.9094 VOICE
802.863.0466 FAX
802.863.0450 TTY
www.burlingtonvt.gov/dpw

To: DPW Commissioners
Fr: Chapin Spencer, Director
Re: **Downtown Parking & Transportation Plan**
Date: July 9, 2015

SUMMARY:
The draft plan recommendations are online on the DPW Commission webpage and at: http://parkburlington.com/downtown-parking-study/. Representatives from BBA, CEDO and DPW will present an overview of the report's main recommendations at the Commission's July meeting and seek Commission input at the meeting and following the meeting.

BACKGROUND:
A unanimous City Council resolution in November 2013 established "a collaborative public/private Downtown Parking Improvement Initiative with a vision of a managed parking system that delivers a positive experience for customers and reinforces the downtown's and waterfront's vitality well into the future."

With the financial support from the Chittenden County Regional Planning Commission, Burlington Business Association (BBA) member contributions and the City's Traffic Fund, the consulting team of Desman Associates and Stantec was selected to develop the Downtown Parking & Transportation Plan.

The mission of the Initiative set in the Council resolution is "to listen, learn, and experiment so that stakeholders can identify and propose new and improved ways to manage, operate and maintain Burlington's public and private parking assets in the city's core." As a key strategy to engage stakeholders, the Council resolution established an advisory committee to provide stakeholder input in the plan's development. The following individuals served on the Parking Advisory Committee:

- **Dan Bradley**, Former DPW Planner (Chair)
- **Jim Barr**, UVM Transportation & Parking Services, DPW Commissioner
- **Charlie Baker**, Chittenden County RPC
- **Chuck DesLauriers,** Hotel Owner & Developer
- **Asa Hopkins**, Former DPW Commissioner
- **John Killacky**, Flynn Center for the Performing Arts
- **Phil Merrick**, August First
- **Jeff Nick**, Church Street Marketplace Commission
- **Kevin Owens**, Select Design
- **Kathy Ryan**, Landscape Architect
- **Max Tracy**, Burlington City Council

The Parking Advisory Committee has met 10 times and has provided valuable guidance. Agendas, minutes and more are at: http://parkburlington.com/parking-advisory-committee/. Former Chair Matt Chabot stepped down as Chair in January 2015 due to his departure from the Burlington Town Center. Vice Chair Dan Bradley graciously stepped up into the Chair role at the following meeting.

In addition to the Parking Advisory Committee's input, we've sought additional public and stakeholder input through a number of outreach strategies including public forums, online input, stakeholder meetings and one-on-one meetings.

The draft plan recommendations are online at: http://parkburlington.com/downtown-parking-study/. Representatives from BBA, CEDO and DPW will present an overview of the report's main recommendations at the Commission's July meeting and seek Commission input at the meeting and following the meeting.

During the pilot, it is proposed to have the DPW Commission retain all current authority over parking downtown policy. After this plan is completed, any proposed ordinance changes relating to parking regulation would still need to be vetted and approved by the Commission.

After the July presentation to the Commission, we will:

- Present to the City Council Transportation Energy & Utilities Committee
- Present to key stakeholder groups
- Have Parking Advisory Committee vote to send the study to the full City Council
- Present to City Council

Don't hesitate to contact me should have any questions.

City of Burlington
Department of Public Works

Technical Services Engineering Division
645 Pine Street, Suite A
Burlington, VT 05402
P 802-863-9094 / F 802-863-0466 / TTY 802-863-0450
www.burlingtonvt.gov/DPW

Memo

Date: July 7, 2015

To: Public Works Commission

From: DPW Transportation Planning

Subject: 2015 VTrans Bicycle and Pedestrian Grant Application

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Background:

The intent of the VTrans Bicycle and Pedestrian Program is to improve access and safety for bicyclists and/or pedestrians through the planning, design and construction of infrastructure projects. Eligible projects for funding through the Bike/Ped Program include the scoping, design, and/or construction of bike lanes, shoulders, pedestrian crossing improvements, sidewalks, pedestrian signals, improvements that address ADA requirements, and shared-use paths. In this year's program, there are three categories of projects defined to be considered for project funding: scoping studies, design/construction projects, and small-scale construction projects. The grant application specifies the need for a public forum with the decision makers so that the public can weigh in on and provide feedback on the project plans.

Project Plans:

A scoping study will include the definition of the purpose and need of a project, review of right-of-way needs, selecting preferred solutions or phased project, and estimating project management, design, and construction costs. The City is seeking to apply for funding for a scoping study to be completed at the five-way intersection where St. Paul Street and South Winooski Avenue intersects Howard Street. Pedestrian safety is of large concern in this area. There are currently no pedestrian crossing signals to regulate crossing patterns, and existing crosswalks that currently cross multiple traffic lanes and are high-risk for vehicle/pedestrian collisions; the crossing connecting the north side of Howard Street is located in the middle of the intersection, forcing pedestrians to cross the equivalent of three lanes of traffic.

The design/construction project category is defined by VTrans to include all of the necessary steps to move a concept through the design, permitting and right of way process to advance to construction. The City plans to construct an additional segment of the Colchester Avenue Sidepath. This new addition would continue the sidepath from Mansfield Avenue (where the

current sidepath ends) west to South Prospect Street. Grant funding has been received previously to renovate and update the sidepath between East Avenue and Mansfield Avenue; this project would complete that vision and provide safe, consistent space for pedestrians along Colchester Avenue.

The small-scale construction designation includes projects to address simple, but critical, improvements that will increase access and/or safety of people choosing to bike or walk. These projects will be funded with all State dollars, lessoning the requirements to be met before construction can take place. These projects must be small stand-alone improvements. The City is seeking to make several crosswalk improvements on Colchester Avenue, which was a recommendation in the Colchester Avenue Corridor Study completed by the CCRPC in 2011. The project would construct a midblock crosswalk with a pedestrian bump out and RRFBs on Colchester Avenue, midway between Mansfield Avenue and East Avenue, to aid pedestrians in safely crossing to and from UVM central campus, Trinity campus, and the UVM Medical Center. It was noted in the corridor study that a considerable number of pedestrians choose to cross free-flowing traffic along this part of the roadway rather than cross at the East Avenue or Mansfield Avenue intersections. Additionally, the midblock cross walk that provides pedestrian access to Centennial Field and the Southern sidewalk along Colchester Avenue is currently situated half in a driveway and does not meet ADA standards. This is a heavily trafficked crosswalk, with hospital employees and Lake Monsters fans regularly using the Centennial Field parking lots. We are seeking to relocate this sidewalk to a new location, about 60 ft. east where new, ADA compliant curb ramps can be installed as well as greenspace for the installation of new RRFBs to increase the safety and visibility of crossing pedestrians.

These projects discussed above were selected for application after having been identified after meeting with several city departments including Public Works, CEDO, Parks and Recreation, City Arts, Planning and Zoning, and the Library.

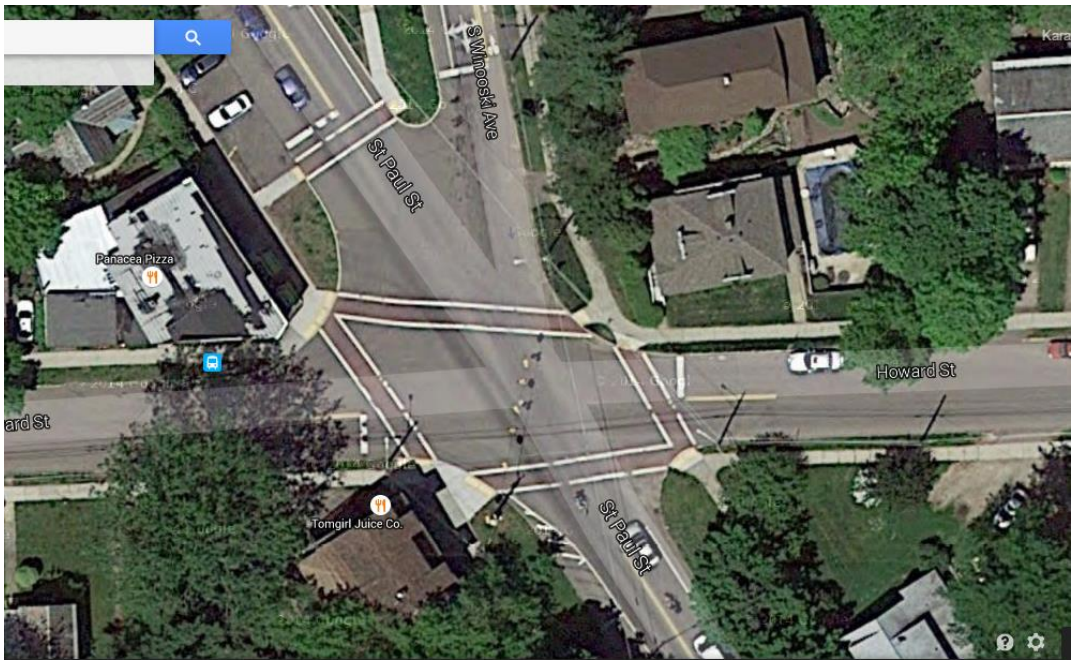


Figure 1: 5-way intersection at Howard Street.

Figure 2: Current crosswalk conditions at Colchester Avenue/Centennial Field.

BURLINGTON, VT
PUBLIC WORKS

MEMORANDUM

July 2, 2015

TO: Public Works Commission

FROM: Damian Roy, Engineer Technician DER

CC: Norman Baldwin, City Engineer NB

RE: Increasing Driver Awareness of Yield Condition

Background:

Staff received a request from resident Charles Kalanges on May 23rd 2014 regarding the channelized lane addition which occurs on Shelburne Road in front of Price Chopper. Mr. Kalanges states that vehicles exiting the Price Chopper parking lot southbound are not adequately yielding to the established southbound traffic wishing to make a lane change. Mr. Kalanges further states that this creates an unsafe condition where vehicles exiting Price Chopper fail to yield and hastily try to continue into the new lane and/or merge onto traffic in the established lane. Mr. Kalanges asserts that installing a stop sign with pavement markings indicating that drivers leaving Price Chopper do not have the Right of Way would solve the issue.

This request was presented to the May Commission where staff recommended installing two MUTCD W4-3 Added Lane Signs, one for the Route 7 southbound lane and one on the channelized ramp. The Commission was divided with this recommendation and asked staff to re-evaluate.

Observations:

Patrons of the shopping center, which includes Price Chopper, who wish to travel south on Shelburne Road do so by exiting the parking lot via a channelized ramp that continues into a new western-most lane. Under normal traffic conditions, vehicles exiting the parking lot using this channelized ramp would have the right of way to continue south as they are already in the newly added lane, however due to the high prevalence of southbound traffic wishing to make a lane change into the western-most lane in preparation to use the 189 entrance ramp, it has been established that restricting the shopping center's exiting traffic by the addition of a yield sign creates a better traffic flow during peak hours and also keeps lane-changing conflicts to a

NB 7/2/15

minimum. While this creates improved traffic flow it is an unusual traffic condition where the exiting lane would, under usual conditions, have the right of way to continue yet does not. Due to this unusual yet necessary traffic flow, Staff feels a greater driver awareness to yield when exiting the ramp may be warranted. Mr. Kalanges suggests installing a Stop Sign causing vehicle exiting the shopping center to stop will increase safety that this location. This is an inappropriate application of a Stop Sign as there is no reason to come to a complete stop when active lane changing isn't present. After coming to a stop there is a high probability that the operator will then proceed forward assuming they now have the right-of-way over the lane-changing traffic flow which has been proven that they should not. There is also the increased possibility of rear-end collisions in a stop condition when it is installed in such an unusual location. The application of a yield condition in this location is set forth by the MUTCD section 2B.09 Yield Sign Applications and should be followed.

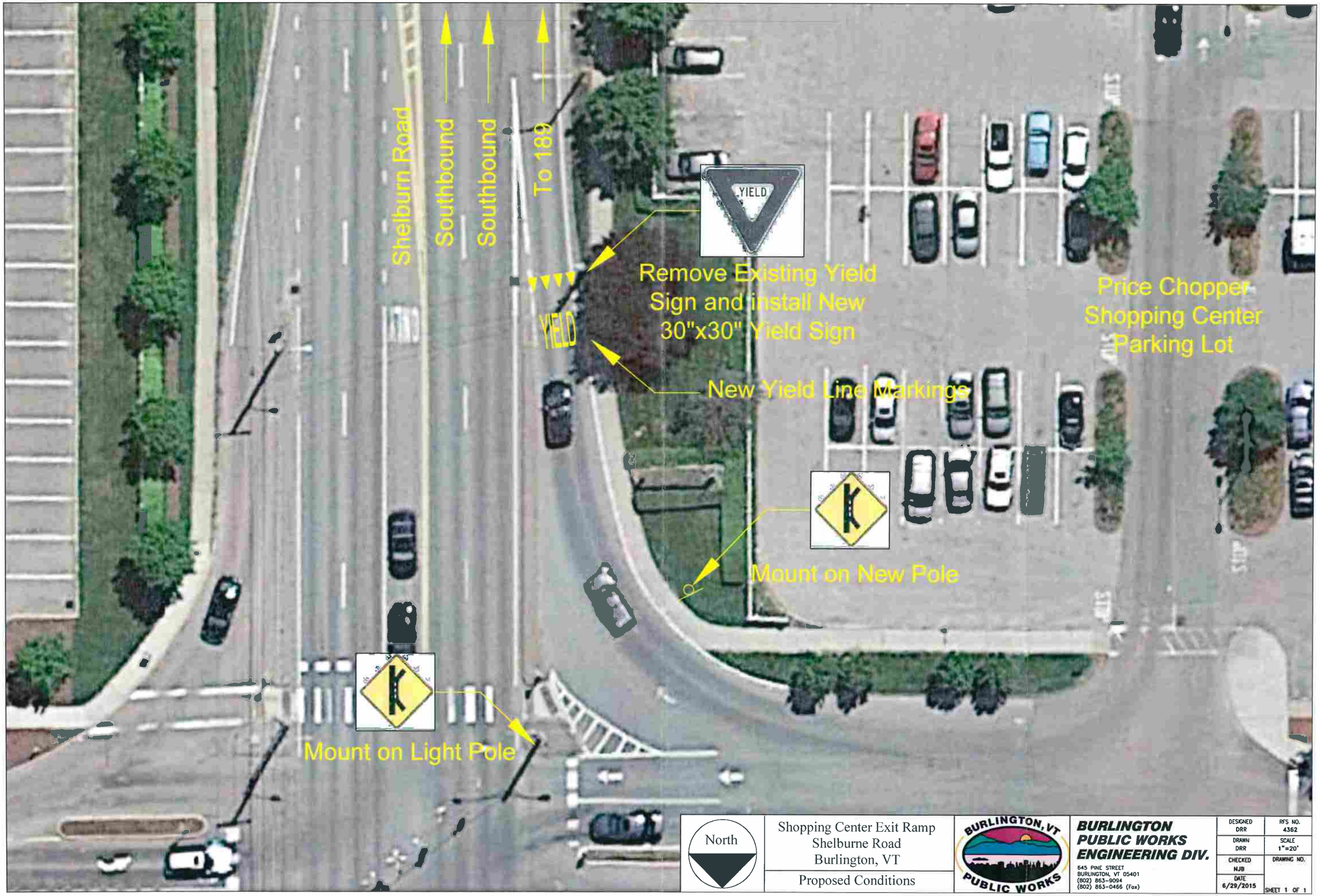
Conclusion:

In an effort to increase driver awareness of the added lane and yield conditions for the channelized ramp, Staff supports the addition of two Weave signs as indicated on the drawing to be visible from each approach with an additional Yield Sign and Yield Pavement Markings where the exit ramp and the existing travel lane meet. This will create a greater awareness to vehicles in each lane that they are entering an area where motorists tend to switch lanes frequently and that the initial right-of-way is given to the existing southbound lane and not the channelized exit ramp. *Please refer to the attached drawing for Staff's recommended signs and their placement, to the MUTCD pages attached for a detailed description of the R1-2 Yield sign, and to the attached Comprehension and Legibility of Selected Symbol Signs Final Report by the Science Applications International Corporation for its study on driver comprehension for Weave Signs.*

Recommendation:

Staff recommends that the commission adopt:

- The addition of two specified Weave Warning signs at the locations indicated by the attached drawing.
- The addition of one R1-2 Yield sign at the location indicated by the attached drawing.
- The addition of Yield Line Pavement Markings at the location indicated by the attached drawing.



North

Shopping Center Exit Ramp
Shelburne Road
Burlington, VT

Proposed Conditions

BURLINGTON, VT PUBLIC WORKS

BURLINGTON PUBLIC WORKS ENGINEERING DIV.

645 PINE STREET
BURLINGTON, VT 05401
(802) 863-9094
(802) 863-0466 (Fax)

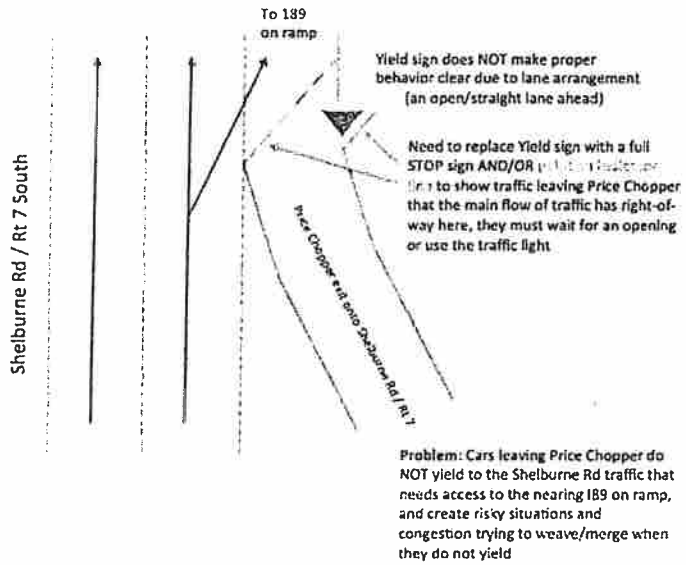
DESIGNED DRR	RFS NO. 4362
DRAWN DRR	SCALE 1"=20'
CHECKED NJB	DRAWING NO.
DATE 6/29/2015	SHEET 1 OF 1

Helen Plumley

From: Charles Kalanges <ckalange@gmail.com>
Sent: Friday, September 19, 2014 5:20 PM
To: Helen Plumley
Subject: Re: [Public Works Department] Price Chopper Shelburne Rd yielding issue

Hi Helen,

I noticed nothing has happened at all at this intersection since I wrote to the DPW so I wanted to bump the subject. I am including a novice diagram of the problem:



If a petition needs to come to light on this particular intersection then please let me know, it seems like a very easy job to physically carry out, but I assume there are probably planning/administrative roadblocks that could hold it up. Let me know if I need to get more steam behind the idea, as it still plagues this area on a daily basis especially during rush hour, when drivers leaving PC ignore the Yield sign and barrel into the lane, trying to weave into the adjacent lanes.

The system works a litttttttle better on the other side of Rt 7 with vehicles leaving Shaw's, because the cars that go to yield/merge into Rt 7 towards downtown don't have their "own" lane ahead, they actually have to merge. It's still messy (would be better off using the traffic light).

Thanks!
Charlie Kalanges

On Fri, May 23, 2014 at 11:24 AM, Helen Plumley <hplumley@burlingtonvt.gov> wrote:

Good morning Mr. Kalanges.

We received your request. I will create a service request and ask our staff to look at the site.

Thank you,

Helen

Customer Service

Department of Public Works

From: RFS [mailto:emailautomation@burlingtonvt.gov]
Sent: Friday, May 23, 2014 9:57 AM
To: Valerie Ducharme; Holly Lane; Helen Plumley
Subject: [Public Works Department] Price Chopper Shelburne Rd yielding issue

This message was sent to you because you are a designated recipient for: Public Works Department
Message ID: 4617
IP Address from: 65.183.159.254

Message from: Charles
Reply to address: ckalange@gmail.com
Message:
Hi, I am writing to request a stronger indicator to cars entering Rt 7/Shelburne Rd from the Price Chopper parking lot to YIELD to the traffic that is already flowing on Rt 7. Although there is a YIELD sign on displayed along the "guided entryway" to Rt 7 from Price Chopper, most oblivious drivers see a clear lane carved out ahead of them and just barrell forward into the flow of traffic without yielding to cars that want to enter the right hand lane leading to the 189 on-ramp. This is ESPECIALLY PROBLEMATIC DURING RUSH HOUR. There is limited space for traffic on Rt 7 to get in the right-hand lane for the 189 on-ramp, and it is further complicated by oblivious morons not yielding to the cars ALREADY IN TRAFFIC ON RT 7 who need to enter the right lane. The priority should be smoothly channeling the hundreds of cars on Rt 7, not allowing the single odd car leaving Price Chopper to completely stop-up the flow because they don't know what "YIELD" means. I would suggest two things - #1, a STOP sign should replace the Yield sign. #2, if possible, paint the pavement by the Price Chopper guided entryway to Rt 7 in a way that enforces the traffic on Rt 7 has right-of-way to enter the right lane heading towards 189, NOT the traffic coming from price chopper. This could mean just painting a stripe that indicates cars coming from Price Chopper do not have "dibs" on the lane in front of them - the cars on Rt 7 do. Thank you for considering my concern - I think if these slight adjustments are made to that area, the flow of traffic will improve and drivers will have a better indication of how to behave. -Charlie Kalanges

Requests for Service (/Main.aspx)

#5762 Assigned New

Assigned to: Damian Roy **Requested by:** Peter Isles

Technical Services | Traffic Requests

Opened: 12/11/2014 **Entered By:** Helen Plumley

Due: 1/10/2015

Location: 573-599 U.S. 7, South Burlington, VT 05403, USA

Per today"s e-mail: Apologies if this seems like a waste of your time, and I know that I"m not an expert, but it has occurred to me that traffic congestion along Shelburne Rd. around the intersection with 189 could be reduced dramatically with a relatively simple fix. Currently, the backup is caused when people from the main traffic lanes try to merge into the new right lane which comes out of the Price Chopper parking lot and becomes the exit lane for 189. This holdup could be greatly reduced if an extra lane was added to the exit ramp and traffic was able to exit from the two right lanes of Shelburne road (the right lane would be exit only, the center lane would be exit-optional). This is essentially the same as the traffic pattern entering 189 from Shelburne Rd. northbound. There appears to be plenty of space around the exit ramp for this expansion. I believe that this would solution would reduce delays caused by the merging of 3 lanes into a single exit lane, would reduce the problem caused by people failing to yield coming out of the Price Chopper parking lot, and would go a long way towards alleviating the congestion on Shelburne Rd., all with relatively minor costs. Just my 2 cents, thanks for your attention. Peter Isles

Work History Add Work History

No Work History

Attachments

No Attachments

Browse... No file selected.

Upload Attachment

11 **Except as provided in Section 2B.09, STOP signs and YIELD signs shall not be installed on different approaches to the same unsignalized intersection if those approaches conflict with or oppose each other.**

12 **Portable or part-time STOP or YIELD signs shall not be used except for emergency and temporary traffic control zone purposes.**

13 **A portable or part-time (folding) STOP sign that is manually placed into view and manually removed from view shall not be used during a power outage to control a signalized approach unless the maintaining agency establishes that the signal indication that will first be displayed to that approach upon restoration of power is a flashing red signal indication and that the portable STOP sign will be manually removed from view prior to stop-and-go operation of the traffic control signal.**

Option:

14 A portable or part-time (folding) STOP sign that is electrically or mechanically operated such that it only displays the STOP message during a power outage and ceases to display the STOP message upon restoration of power may be used during a power outage to control a signalized approach.

Support:

15 Section 9B.03 contains provisions regarding the assignment of priority at a shared-use path/ roadway intersection.

Section 2B.05 STOP Sign (R1-1) and ALL WAY Plaque (R1-3P)

Standard:

01 **When it is determined that a full stop is always required on an approach to an intersection, a STOP (R1-1) sign (see Figure 2B-1) shall be used.**

02 **The STOP sign shall be an octagon with a white legend and border on a red background.**

03 **Secondary legends shall not be used on STOP sign faces.**

04 **At intersections where all approaches are controlled by STOP signs (see Section 2B.07), an ALL WAY supplemental plaque (R1-3P) shall be mounted below each STOP sign. The ALL WAY plaque (see Figure 2B-1) shall have a white legend and border on a red background.**

05 **The ALL WAY plaque shall only be used if all intersection approaches are controlled by STOP signs.**

06 **Supplemental plaques with legends such as 2-WAY, 3-WAY, 4-WAY, or other numbers of ways shall not be used with STOP signs.**

Support:

07 The use of the CROSS TRAFFIC DOES NOT STOP (W4-4P) plaque (and other plaques with variations of this word message) is described in Section 2C.59.

Guidance:

08 *Plaques with the appropriate alternative messages of TRAFFIC FROM LEFT (RIGHT) DOES NOT STOP (W4-4aP) or ONCOMING TRAFFIC DOES NOT STOP (W4-4bP) should be used at intersections where STOP signs control all but one approach to the intersection, unless the only non-stopped approach is from a one-way street.*

Option:

09 An EXCEPT RIGHT TURN (R1-10P) plaque (see Figure 2B-1) may be mounted below the STOP sign if an engineering study determines that a special combination of geometry and traffic volumes is present that makes it possible for right-turning traffic on the approach to be permitted to enter the intersection without stopping.

Support:

10 The design and application of Stop Beacons are described in Section 4L.05.

Figure 2B-1. STOP and YIELD Signs and Plaques

R1-1 R1-3P R1-2 R1-2aP R1-10P

Section 2B.08 YIELD Sign (R1-2)

Standard:

01 **The YIELD (R1-2) sign (see Figure 2B-1) shall be a downward-pointing equilateral triangle with a wide red border and the legend YIELD in red on a white background.**

Support:

02 The YIELD sign assigns right-of-way to traffic on certain approaches to an intersection. Vehicles controlled by a YIELD sign need to slow down to a speed that is reasonable for the existing conditions or stop when necessary to avoid interfering with conflicting traffic.

Section 2B.09 YIELD Sign Applications

Option:

01 YIELD signs may be installed:

A. On the approaches to a through street or highway where conditions are such that a full stop is not always required.
B. At the second crossroad of a divided highway, where the median width at the intersection is 30 feet or greater. In this case, a STOP or YIELD sign may be installed at the entrance to the first roadway of a divided highway, and a YIELD sign may be installed at the entrance to the second roadway.
C. For a channelized turn lane that is separated from the adjacent travel lanes by an island, even if the adjacent lanes at the intersection are controlled by a highway traffic control signal or by a STOP sign.
D. At an intersection where a special problem exists and where engineering judgment indicates the problem to be susceptible to correction by the use of the YIELD sign.
E. Facing the entering roadway for a merge-type movement if engineering judgment indicates that control is needed because acceleration geometry and/or sight distance is not adequate for merging traffic operation.

Standard:

02 **A YIELD (R1-2) sign shall be used to assign right-of-way at the entrance to a roundabout. YIELD signs at roundabouts shall be used to control the approach roadways and shall not be used to control the circulatory roadway.**

03 **Other than for all of the approaches to a roundabout, YIELD signs shall not be placed on all of the approaches to an intersection.**

Section 2B.10 STOP Sign or YIELD Sign Placement

Standard:

01 **The STOP or YIELD sign shall be installed on the near side of the intersection on the right-hand side of the approach to which it applies. When the STOP or YIELD sign is installed at this required location and the sign visibility is restricted, a Stop Ahead sign (see Section 2C.36) shall be installed in advance of the STOP sign or a Yield Ahead sign (see Section 2C.36) shall be installed in advance of the YIELD sign.**

02 **The STOP or YIELD sign shall be located as close as practical to the intersection it regulates, while optimizing its visibility to the road user it is intended to regulate.**

03 **STOP signs and YIELD signs shall not be mounted on the same post.**

04 **No items other than inventory stickers, sign installation dates, and bar codes shall be affixed to the fronts of STOP or YIELD signs, and the placement of these items shall be in the border of the sign.**

05 **No items other than official traffic control signs, inventory stickers, sign installation dates, anti-vandalism stickers, and bar codes shall be mounted on the backs of STOP or YIELD signs.**

06 **No items other than retroreflective strips (see Section 2A.21) or official traffic control signs shall be mounted on the fronts or backs of STOP or YIELD signs supports.**

Guidance:

07 *STOP or YIELD signs should not be placed farther than 50 feet from the edge of the pavement of the intersected roadway (see Drawing F in Figure 2A-3).*

08 *A sign that is mounted back-to-back with a STOP or YIELD sign should stay within the edges of the STOP or YIELD sign. If necessary, the size of the STOP or YIELD sign should be increased so that any other sign installed back-to-back with a STOP or YIELD sign remains within the edges of the STOP or YIELD sign.*

Option:

09 Where drivers proceeding straight ahead must yield to traffic approaching from the opposite direction, such as at a one-lane bridge, a TO ONCOMING TRAFFIC (R1-2aP) plaque may be mounted below the YIELD sign.

Traffic Control Devices Pooled Fund Study

Comprehension and Legibility of Selected Symbol Signs
Phase III

Final Report

June 2012

Prepared by:
Bryan Katz
Erin Dagnall
Mary Anne Bertola

Science Applications International Corporation

INTRODUCTION

Traffic signs provide an important communication tool that is used to convey regulatory, warning, and guidance information to road users. The process of understanding user requirements for new signs is particularly important for symbol signs, which rely on a common non-verbal interpretation by a large and diverse population of drivers.

The Traffic Control Devices Pooled Fund Study (TCD PFS) focuses on a systematic evaluation of novel traffic control devices (TCDs), employing a process that addresses human factors and operations issues for each TCD idea. As part of the TCD PFS effort, the Federal Highway Administration (FHWA) Human Factors Team will evaluate proposed new traffic signs in order to ensure that the signs are effective when taking driver comprehension and legibility requirements into consideration.

The *Manual on Uniform Traffic Control Devices* (MUTCD) is the national standard for traffic control devices.[1] As traffic signs are designed and improved, the Human Factors Team will provide feedback to the MUTCD Team on driver-related characteristics that are observed with the proposed signs.

BACKGROUND

The FHWA produces the MUTCD as a manual which provides standards related to the design and operation of traffic control devices. It contains the basic principles that govern the selection, design, installation, operation and maintenance of traffic control devices. According to the MUTCD, traffic control devices "notify road users of regulations and provide warning and guidance needed for the safe, uniform, and efficient operation of all elements of the traffic stream".[1] The MUTCD also states that for a traffic control device to be effective it should:

1. Fulfill a need;
2. Command attention;
3. Convey a clear, simple meaning;
4. Command respect from road users; and
5. Give adequate time for proper response.

The comprehension, conspicuity, and legibility properties of highway signs are essential in order for the final four requirements to be met. A device cannot command attention if it is not conspicuous. Additionally, a device cannot convey a clear and simple meaning if the device is not comprehended. If a device is not understood, then the sign will not command respect from road users. If any of the three major driver-related properties are inadequate, then the traffic control device will not be designed to provide an adequate time for a proper response. Providing adequate time for a proper response is critical because without proper response time, drivers will not be able to perceive problems and react to them in an adequate amount of time to maneuver their vehicles, which may ultimately lead to crashes.

The MUTCD also gives guidance for the design of traffic control devices. The MUTCD states in section 1A.03:[1]

> *"Devices should be designed so that size, shape, and color, composition, lighting or retroreflection, and contrast are combined to draw attention to the devices; that size, shape, color, and simplicity of the message combine to produce a clear meaning; that legibility and size combine with placement to permit adequate time for response; and that uniformity, size, legibility, and reasonableness of the message combine to command respect."*

Regarding symbols signs, the MUTCD states the following in Section 2A.12:1

> "*Symbol designs shall in all cases be unmistakably similar to those shown in this Manual and in the "Standard Highway Signs and Markings" book... New symbol designs are adopted by the Federal Highway Administration based on research evaluations to determine road user comprehension, sign conspicuity, and sign legibility.*"

From this language, it is apparent that new sign symbols can be introduced only after being evaluated through research and formal adoption in the MUTCD by the FHWA. Although it is not difficult to design a sign that "seems" to be effective, it is important for transportation engineers to recognize that the driver might perceive the sign to mean something completely different, and may not act in the manner that is intended by the engineer. Therefore, it is essential to research the driver-related issues that exist when new traffic signs are introduced to the roadway environment, which is the focus of the effort presented in this report.

By pooling resources and expertise, rather than performing several independent research studies across the country, the TCD PFS provides local and state agencies faster responses to their needs and new technologies using effective assessment skills and tools which enable consistent TCD idea identification and evaluation. The TCD PFS efforts address TCD issues identified by local and state jurisdictions, industry, and organizations and aid in the compliance to the MUTCD rule-making process and incorporation of novel TCDs into the MUTCD.

The TCD PFS members have selected various sign concepts to include as Phase III of a study to evaluate the effectiveness of concepts for new symbol signs. The current document describes this study effort.

LITERATURE REVIEW

There have been various research studies on the effectiveness of traffic signs, including evaluations of comprehension, legibility, and driver response.

Dewar and Ells identified a need for assessing methods for evaluating signs and other TCDs because there is little to suggest which currently employed methods provide the best information.[2] They indentified several factors that should be evaluated: meaning, attention value, legibility, processing time, learnability, and influence on driver behavior. In a later paper on

symbol signing, Dewar described six criteria as being important in the evaluation and design of symbol signs including understandability, legibility distance, conspicuity, learnability, glance legibility, and reaction time.[3]

Evaluations of Understandability

Understandability, hereafter referred to as *comprehension*, has been measured a number of different ways by different researchers. Alicandri and Wochinger asked research participants to write their interpretation of the sign meanings and indicate what action they would take if the signs were seen on the roadway.[4] Katz et al. used a similar procedure except that multiple-choice questions were asked following participants' initial interpretation of sign meanings.[5,6] The multiple-choice test was used to examine whether participants made problematic inferences about different signs (e.g., whether an animal presence sign with a flashing beacon turned off meant that no deer were present).[5] Katz et al. also had participants speak their interpretations of the road signs aloud while they were transcribed by researchers.[6] Speaking aloud may allow participants to provide more natural and complete responses rather than being constrained by the time it takes to write and possibly leaving out important details. In all cases, images of the signs were used without a background or roadway scene.

Picha et al. showed participants a picture of the sign in-context where the roadway background was included in the picture.[7] Next to this picture, a close-up view of the device was provided along with multiple-choice questions about each sign. In their evaluation of driver comprehension of combined lane-use and destination signing, Golembiewski et al. showed participants images of the signs on basic roadway backgrounds so that each sign assembly was viewed mounted above a 3-lane road.[8] Because the signs provided directional and lane assignment information, backgrounds were necessary in order to provide the basic contextual information required to evaluate comprehension of the sign messages. Each sign was displayed for 3 seconds before participants were asked which lane(s) they could use to get to their target destination.

Evaluations of the Influence on driver behavior

Dewar and Ells indicated that "before-and-after" studies are one of the most frequently used methods for evaluating signs; however, they also pointed out that there are several problems with this method.[2] They suggest that three possible methods of evaluating signs include a field study under normal driving conditions, a modified field study using scaled down signs, and a laboratory experiment to determine reaction time. Reaction time was taken to be the amount of time between the onset of the stimulus and the activation of a voice-operated instrument that was triggered when the correct meaning of the sign was spoken. The three techniques were compared and it was determined that the overall trends and relationships were similar; however, the actual distances obtained in the simulator were less than those observed in the field.[2] The concept of "optimal index" is also described by Dewar and Ells and is stated as "*the degree to which [a sign] conveys the intended message to a driver operating a vehicle in an actual driving situation.*"[2]

Laboratory Evaluations

Desrosiers performed field and laboratory investigations to determine the effectiveness of traffic signs.[9] The author stated that laboratory studies eliminate problems dealing with environmental variables (weather, light, and traffic conditions), reduce the time required to gather data, and provide researchers with additional control over the experiment. Stimuli were presented using 16 mm color motion pictures. It was concluded that laboratory tests can replace field tests but to obtain the same legibility distances observed in the field, a correction factor must be applied to distances obtained in the laboratory.[9]

Zwahlen et al. (1991) suggested several factors that contribute to the underestimation of legibility distances by laboratory studies. These include insufficient display resolution, insufficient luminance and contrast representation, no change in depth, small image vibrations, and non-uniform and less sharp symbol or legend contours.[10]

Sign research for both comprehension as well as recognition distances have been performed at Turner Fairbank Highway Research Center (TFHRC) in the past as shown in Philips et al.[11], Alicandri and Wochinger[4], and Mahach et al.[12] The Philips et al. study dealt solely with the use of the Sign Simulator (SignSim) Laboratory for determining comprehension and recognition distances. It was determined that relative recognition distances could be found in the simulator but actual recognition distances could not be obtained without further validation. Thus it was concluded that signs could be compared against each other for relative recognition; however the actual recognition distances could not be calculated.[11]

The Mahach et al. study hoped to test the significance of the differences in recognition distance between the SignSim Laboratory and the natural environment by using actual scaled signs in TFHRC's Photometric and Visibility Laboratory (PVL).[12] The study pointed out that the effect of the light on signs in a natural environment differs from the SignSim because in the SignSim, the light is diffused as a sign approaches. The study indicated significant differences between the recognition distances obtained in the SignSim and recognition differences obtained in the PVL for nearly all signs which were tested.

Summary

Previous research employs both open-ended and multiple choice responses to obtain information about driver comprehension. Signs have been successfully evaluated both with no background where it is not required and with basic roadway backgrounds where it is necessary that signs be viewed in-context. This study will incorporate similar methods in order to determine if participants understand the general meaning of the signs and to determine whether or not they understand certain specific characteristics of the signs.

The research indicates that TFHRC's SignSim Laboratory will provide acceptable data for relative recognition distances; however, scale factors may be required to provide actual recognition distances. A field study would be required to effectively relate the lab results to field results. For comparing alternatives, the SignSim Laboratory is expected to provide the information required.

RESEARCH GOALS

The FHWA Human Factors Team conducted Phase III of the International Symbol Signs study to develop and evaluate proposed alternatives for new traffic signs. The goals of this study were as follows:

- Evaluate driver comprehension of selected signs.
- Measure the legibility distance of selected signs.
- Provide recommendations on signs that merit consideration for addition to the MUTCD.

The TCD PFS panel selected the following sign messages for symbol development and evaluation:

- Alternate Merge
- Bike Symbol
- Grade Crossing (Crossbuck)
- Pedestrian Crossing
- Toll Collection Symbols
- Truck Rollover with Advisory Speed Limit
- Trucks in Roundabouts
- Walk Bikes
- Weave Symbol

RESEARCH APPROACH

The research approach consisted of four major elements: gathering information to develop alternatives, evaluating the understanding of selected alternatives, evaluating legibility of the alternatives, and developing recommendations on use. The specific activities were the following:

- Information gathering to see what various state and international agencies are using to convey the target sign messages.
- Identify candidate text and symbol signs based on current practice and through literature review.
- Develop alternatives selected to be researched.
- Perform a laboratory study to evaluate comprehension of the sign alternatives.
- Determine the legibility distance of the sign alternatives.
- Draft recommendations regarding the implementation of the signs that were evaluated.

SIGN CATEGORIES

Examples of various domestic and international symbol signs were gathered and studied prior to the development of symbol sign designs for this study. The following describes each sign category, the intended purpose of the sign, and background information on potential sign alternatives within each category.

Alternate Merge

While there are some variations that have been evaluated or put to use, the MUTCD (2009) does not currently include a symbol sign to indicate "Alternate Merge", which is suggested to be used in a situation where two lanes merge into one, without the right-of-way assigned to either lane.

Two proposed symbol signs were evaluated, as well as text signs in order to determine if a symbol would be effective in conveying this message or if a word legend as the primary sign would better serve this purpose.

Bicycle Symbol

The MUTCD (2009) includes a bicycle symbol (W11-1) which may be used to alert road users to locations where expected entries to the road by bicyclists might occur. Supplemental plaques with legends such as "AHEAD", "NEXT XX MILES" or "SHARE THE ROAD" may be added to provide additional information for notifying road users about the regulations and warnings regarding bicyclists.[1]

The research team evaluated the current bike symbol and various proposed bike symbols to determine what the most effective symbol is for notifying road users about regulations and warnings about bicyclists. The team sought to determine if showing a bike and rider will improve comprehension and legibility.

Grade Crossing (Crossbuck)

The Grade Crossing (R15-1) sign in the MUTCD (2009), commonly referred to as the Crossbuck sign, is used on each approach to every highway-rail grade crossing.[1] The research team evaluated the current MUTCD sign, a Canadian Crossbuck sign, and an alternative that combines the two versions.

Pedestrian Crossing

The MUTCD (2009) states that Yield Here to Pedestrians and Stop Here for Pedestrians (R1-5 series) regulatory signs are placed in advance of a marked crosswalk to indicate the point where drivers must yield or stop for a pedestrian in a crosswalk. A Pedestrian Crossing (W11-2) sign may be used in conjunction with a diagonal downward pointing arrow (W16-7P) plaque and post-mounted at the crosswalk location where an R1-5 series sign is used on the approach.[1] In-Street Pedestrian Crossing (R1-6 series) regulatory signs may also be used to remind drivers of the right-of-way, and are placed at the crosswalk location on the center line, a lane line, or on a median island.[1]

The research team examined each sign alternative as a stand-alone sign, post-mounted and at the crosswalk location in order to address the following questions:

1. Do drivers understand the meaning of the W11-2+W16-7P assembly and what action they are supposed to take?

2. Does a regulatory sign stating a rule of the road significantly enhance driver understanding of what he is supposed to do when a pedestrian occupies the crosswalk?

Toll Collection Symbols

The MUTCD (2009) includes toll collections symbols such as Toll Collector (M4-17), Exact Change (M4-18) or an example Electronic Toll Collection symbol (as shown in M4-20). These symbols are used as guide sign panels that accompany word messages to indicate payment methods allowed at different toll plaza lanes.[1] Various states use similar methods for toll collection signing, however many of the symbols used differ from those in the MUTCD.

An evaluation of the MUTCD symbols, as well as proposed alternatives, is needed to determine if they can be considered for future independent use without word legends. The team evaluated various symbols to indicate toll collection methods (automatic and attended lanes) without the use of text, and also sought to establish standardized symbols that may be employed throughout the country.

Truck Rollover with Advisory Speed Limit

The MUTCD (2009) includes a Truck Rollover Warning (W1-13) sign that may be used to warn drivers of vehicles with a high center of gravity of a turn, curve, or other type of roadway alignment change which might contribute to a loss of control and rollover. This sign is accompanied by an Advisory Speed (W13-1P) plaque.[1] The MUTCD also states that the Hairpin Curve (W1-11) sign may be used to warn drivers when a curve has a change in horizontal alignment of 135 degrees or more.

The research team investigated how drivers interpret the Truck Rollover Warning and Advisory Speed plaque (W1-13 and W13-1P) sign combination. More specifically, do operators of vehicles which are *not* susceptible to load shifts and tip over also interpret the sign and advisory speed as conveying an alignment change and know to react accordingly? In addition, the W1-13 sign uses a generic 135-degree sweep arrow, as opposed to the hairpin arrow. Therefore, the research team will investigate how drivers interpret each arrow type to determine if the 135-degree sweep arrow can be applied generically at tipping hazard locations.

Trucks in Roundabouts

A sign that indicates to drivers that trucks may use multiple lanes in a roundabout is needed, i.e. that trucks may encroach into lanes other than their own as then enter, proceed through and exit the roundabout. There are currently no signs that meet this need in the MUTCD (2009). The research team identified various options for testing that are either in use by some states currently, or that have been proposed for use pending testing of the signs.

Walk Bikes

There is need for a sign that indicates to bicyclists that they are entering an area where they should dismount their bike and walk it through that area. There are currently no signs for this in

the MUTCD (2009). The research team evaluated proposed signs to determine comprehension of such a sign from the perspective of a bicyclist.

Weave Symbol

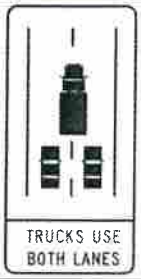
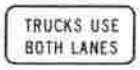
There is currently no symbol sign to accurately warn motorists of a situation where entering and exiting traffic must merge in a short added lane. Therefore, the research team evaluated various proposed symbol signs to depict this message.

SIGN ALTERNATIVES

Table 1 shows the final sign alternatives that were selected for evaluation in each sign category.

Table 1: Sign Alternatives Selected for Evaluation

Sign Category	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5
Alternate Merge					
Bike Symbol				None	None
Grade Crossing (Crossbuck)				None	None
Pedestrian Crossing					
Toll Collection Symbols					None

Truck Rollover with Advisory Speed Limit					None
Trucks in Roundabouts					None
Walk Bikes			None	None	None
Weave Symbol (Diverge)					None

METHOD

RESEARCH DESIGN

The research was conducted at the Turner Fairbank Highway Research Center in the Highway Sign Laboratory (Sign Lab). Participants sat approximately 5 feet from a 60" LCD display. Signs were evaluated for comprehension and legibility. The software used for legibility testing is designed to gradually increase the size of the sign, emulating how that sign would appear when driving toward the sign at a specified speed. Sign size, driving speed and start distance were all manipulated to make the representation as accurate as possible. The size of the sign when it becomes legible was then translated into distance. Both the software used for comprehension and for legibility electronically collected the required data and saved output data files for analysis.

Comprehension

The first portion of the study evaluated driver comprehension of each sign alternative in the different sign categories. This was a three stage process in which participants provided open-ended responses, multiple choice responses and subjective rankings of the signs. The open-ended and multiple choice sections were between subjects factors, in which participants saw only one sign alternative from each sign category. Participants were shown one sign at a time, and the sign

remained on the screen for as long as they needed to provide their response. Signs were shown on a basic roadway background, in order to provide roadway context for each particular sign category. In the ranking section, participants were shown all sign alternatives for a given category and then ranked each sign on how well each alternative would work to show the intended meaning of the sign. Participants completed all three comprehension sections for a given sign category before moving on to the next category; i.e., they completed open-ended, multiple choice and rankings for the "Alternate Merge" sign category before moving on to the "Bike Symbol" sign category.

Open-Ended

When a sign first appeared on the screen, participants were asked "What does this sign mean to you?" They responded aloud with what they thought the sign meant, or what message they thought it was trying to convey. A researcher transcribed their responses.

They were then asked follow-up questions such as "Would this sign change your behavior?", "What action should you take?" or "Where would you expect to see a sign like this?" The follow up questions varied depending on the type of sign and which questions were most applicable in order to further clarify their understanding or to inquire about a different aspect of the sign.

Multiple Choice

Upon completion of the open-ended questions, participants were asked to choose among three or four definitions (only one of which was correct that *best* described the meaning of the sign.

Ranking

Before the ranking section, participants were shown all sign options for the current sign category (e.g. if they had just seen the "Form One Lane" text sign option for the open-ended and multiple choice sections, they would now be shown all five sign alternatives in the Alternate Merge sign category, shown in Table 2. Participants were told the intended meaning of the sign, given time to look over all of the sign alternatives, and were asked to rank each alternative on how well it would work to illustrate the intended meaning. Participants ranked the signs on a scale from 1-7, where 1 represented "would not work at all", 4 represented "might work" and 7 represented "would work very well". They were told to rank each sign individually rather than order them; i.e., two signs could have the same ranking, they should not order them from best to worst and vice versa. Participant rankings were not analyzed and did not influence sign recommendations; rankings were used as supplemental subjective information only.

Legibility

The researcher then tested each sign for legibility distance – the maximum distance at which the participant can read text or decipher the elements of the sign. For the legibility distance evaluation, participants viewed each sign alternative of all sign categories, totaling 34 test signs. Distracter signs were also included to minimize guesses by participants. The distracter signs included: Stop, Yield, Fire Station, Slower Traffic Keep Right, No U-turn, Deer Crossing,

Intersection, Hospital, Road Work, Airport, and Dead End. All signs were presented in a different random order to each participant, with the exception of "Stop" "Yield" and "No U-Turn" which were always be presented first as practice signs.

For the test, each sign was shown one at a time and on a black background. The sign presentation began at a simulated distance of 1000 feet (304.8 meters). The sign expanded in size to simulate an approach speed of 30 mi/h. Participants were instructed to keep their eyes on the sign, and to press a button on the table in front of them as soon as the sign became legible (i.e. as soon as they could make out the elements of the sign). When the button was pressed, the sign disappeared and the distance was recorded. The participant then described the sign aloud. If the participant was correct, the researcher began a new trial with a different sign. If they were incorrect, the same sign reappeared and continued to increase in size so the participant had another opportunity to press the button when the sign truly became legible.

Correctness was deemed anything that confirmed that the sign was legible to the participant. If the sign size reached the full screen without a correct response, the trial was terminated and the next trial began.

PARTICIPANTS

One hundred and three participants were recruited from the Washington DC metropolitan area, and were obtained through the Human Factors Team research participant database. Participants were at least 18 years of age, possessed a valid U.S. driver's license, and passed a visual acuity test with a minimum of 20/40 binocular vision, corrected if necessary. Prior to the start of the experiment, participants were asked to read and sign the Informed Consent form. Participants were paid $30 for their time.

RESULTS

ALTERNATE MERGE

One hundred and three participants each viewed one of the five Alternate Merge sign alternatives.

Comprehension

The participant answers to the open-ended questions were characterized as providing two responses: (A) Participant understood that two lanes were merging into one; and (B) Participant indicated that drivers should alternate the merge. Results from a Fisher's Exact Test indicated that comprehension levels for Response A varied significantly by sign alternative ($p < 0.0001$). Statistical analysis was not performed for Response B, as some participants may not have provided this information, i.e. Response B simply indicates the participants who provided additional information; there is no way of knowing whether other participants understood this concept and just chose not to specify. Comprehension results are shown in Table 2.

Table 19. Walk Bikes Signs Evaluated in Study

Alternative 1	Alternative 2
	

Summary Findings for Walk Bikes

Comprehension was significantly higher for alternative 1 (89%) than for alternative 2 (62%), though all participants responded correctly to the multiple choice question. Participant rankings indicated a preference with alternative 1 (7.74) over alternative 2 (5.96).

Recommendations for Walk Bikes

The comprehension results indicate that bicyclists may misinterpret the meaning of the sign without the text, therefore alternative 1 is recommended for use.

WEAVE

Four alternatives were evaluated for Weave signs, shown in Table 19.

Table 19. Weave Signs Evaluated in Study

Alternative 1	Alternative 2	Alternative 3	Alternative 4
			

Summary Findings for Weave

While the differences were not statistically significant, alternative 2 had higher comprehension than alternatives 1, 3 and 4, with 79%, 61%, 43% and 65%, respectively. Alternative 2 also performed the best on the multiple choice response, with 95% correct responses, over the 48%, 43% and 35% for alternatives 1, 3 and 4. Rankings were relatively low for all sign alternatives. Legibility distances varied significantly by alternative, with 506.73, 440.67, 490.80 and 473.71 for alternatives 1, 2, 3 and 4, respectively.

Recommendations for Weave

Alternative 2 is recommended for use.

Table 10. Comprehension Results for Walk Bikes Signs

Walk Bikes Sign Alternatives	Alt 1 	Alt 2 
Open-Ended Response		
Understood	88.64%	61.54%
Multiple Choice Response		
Do not ride your bicycle without a helmet	-	-
Bicycle parking area	-	-
No bikes allowed past this point	-	-
Dismount your bicycle and walk it through this area	100%	100%
Ranking		
1 – Would Not Work at All	-	6.10%
2	1.22%	4.88%
3	-	2.44%
4 – Might Work	2.44%	31.71%
5	2.44%	15.85%
6	19.51%	18.29%
7 – Would Work Very Well	73.71%	19.51%

All participants were correct for the multiple choice question. When asked to rank the signs on how well they would work to show the intended meaning, participants gave a mean ranking of 7.74 for alternative 1 and 5.96 for alternative 2.

Legibility

Legibility distances were not examined for the Walk Bikes sign alternatives since these signs were viewed from the perspective of a bicyclist.

WEAVE

Eighty three participants each viewed one of the four Weave sign alternatives.

Comprehension

For the open-ended responses, participants were considered correct if they understood that merging traffic (entering the roadway) and diverging traffic (exiting the roadway) were going to cross paths. A Fisher's Exact Test indicated that comprehension did not vary significantly by sign alternative ($p = 0.1382$). Comprehension results are shown in Table 11.

Table 11. Comprehension Results for Weave Signs

Weave Sign Alternatives	Alt 1 	Alt 2 	Alt 3 	Alt 4 
Open-Ended Response				
Understood	60.87%	78.95%	42.86%	65%
Multiple Choice Response				
1. Traffic entering and exiting the highway must merge in a short added lane	52.17%	94.74%	57.14%	65%
2. Highway splits ahead and will go in two different directions	47.83%	5.26%	42.86%	35%
3. You will approach a roundabout when you exit	-	-	-	-
4. New traffic pattern ahead due to construction	-	-	-	-
Ranking				
1 – Would Not Work at All	45.12%	19.51%	34.15%	31.71%
2	12.2%	10.98%	15.85%	19.51%
3	4.88%	8.54%	15.85%	10.98%
4 – Might Work	24.39%	30.49%	14.63%	18.29%
5	6.1%	10.98%	9.76%	13.41%
6	7.32%	14.63%	7.32%	4.88%
7 – Would Work Very Well	-	4.88%	2.44%	1.22%

For the multiple choice question, participants performed the best on alternative 2, with nearly 100% correctness. When asked to rank each sign on how well it would work to show the intended meaning, participants gave alternatives 1, 2, 3 and 4 mean rankings of 2.56, 3.66, 2.82 and 2.82, respectively.

Legibility

Sixty two participants viewed each of the Weave sign alternatives. Results from a Mauchly's sphericity test indicated that the variances of the differences between the legibility distances of the sign alternatives were not equal ($\chi^2(5) = 17.25$, $p = 0.004$) so adjusted univariate statistics were used. A Repeated Measures ANOVA indicated that legibility distances differed significantly by sign alternative ($F(3,183) = 16.11$, $p < 0.001$). Mean legibility distances for each sign alternative and corresponding 95% confidence limits about the means are displayed in Figure 6. Multiple comparisons were performed using Tukey's Studentized Range test. Sign 1 had the highest mean legibility distance (506.73 ft), which was significantly different from the mean legibility distance for Sign 2 (440.67 ft) and Sign 4 (473.71 ft). The mean legibility distance for Sign 3 (490.80 ft) and Sign 4 differed significantly from the mean legibility distance for Sign 2.

BURLINGTON DEPARTMENT OF PUBLIC WORKS COMMISSION MEETING
DRAFT MINUTES, JUNE 17, 2015
53 Lavalley Lane (Main Wastewater Treatment Plant)
(DVD of meeting may be on file at DPW)

COMMISSIONERS PRESENT: Bob Alberry, Tiki Archambeau (via cell phone), Jim Barr, Asa Hopkins, Solveig Overby, Jeffrey Padgett and Tom Simon

Commissioner Hopkins called the meeting to order at 6:35 p.m.

ITEM 1 – AGENDA
(Refer to Packet)
Item 9 (Truck Loading Zone Request at 258 No Winooski Ave) was stricken from the Agenda, postponed to the July meeting. **Commissioner Barr moved** to accept the Agenda as amended; Commissioner Padgett seconded. Unanimous.

ITEM 2 – PUBLIC FORUM
Caryn Long: 1) Dissatisfied with lack of parking enforcement in the vicinity of the Henry St Market (vehicles often not using the loading zone and short-term metered parking spaces); has taken several pictures. Ms. Long has spoken with the business owner and called the police department for enforcement. 2) Concerned about lost green space, its contribution to stormwater problems, and the lack of enforcement for non-compliant properties, particularly in Ward 1. Ms. Long has sent pictures of such instances to Director Spencer.

ITEM 3 – PEARL ST CORRIDOR STUDY PREFERRED ALTERNATIVE
(Refer to Packet)
(Communication, Nicole Losch, Transportation Planner)
Ms. Losch's presentation will be on the DPW Web page. The inexpensive, easy-to-administer streetscape improvements to the section of Pearl St between Battery and Saint Paul Sts (e.g., paint/striping and planters), are in keeping with *Complete Streets* standards, supporting all modes of transportation. Next steps: Finalizing the plans and working up a budget, with all work hopefully completed by next year. Emily Boedecker, Executive Director of LocalMotion, expressed support and gratitude for the project, and encouraged the Commission to accept the use of planters as a physical separation between vehicles and bicyclists. She informed the Commission of the use of stenciling using green paint as a standard visual cue for bicyclists when coming upon congested areas.

ITEM 4 – TOUR OF MAIN WASTEWATER TREATMENT PLANT
(Presentation, Steve Roy, P.E., Project Engineer)
The meeting was paused to allow attendees to participate in a tour of the facility, led by Project Engineer Steve Roy. The meeting resumed at 7:50 p.m.

ITEM 5 – INTEGRATED PLANNING PRESENTATION
(Oral Presentation, Megan Moir, Stormwater Administrator)
Ms. Moir gave a presentation on Integrated Water Quality Planning: Municipal Stormwater and Wastewater. Integrated stormwater/wastewater planning is a mechanism that the Environmental Protection Agency (EPA) has been promoting which allows communities with numerous Clean Water Act obligations to:

1) Examine all of the obligations as a whole;
2) Identify the community's relative priorities for addressing human health and water quality improvements…and

3) Address the priorities through appropriate sequencing and scheduling of work based on implementing the projects with the highest cost benefit…first.

Burlington's grant application for technical assistance, put together by Ms. Moir, was one of five selected for funding out of 28 proposals submitted from communities across the U.S. The EPA is providing Burlington with $67,000 worth of an EPA contractor's (Tetra Tech) services to support the proposed scope of work.
Opportunities for input include Neighborhood Planning Assembly (NPA) meetings, a public input survey and a stakeholders meeting.
Ms. Moir will try to get a Webinar on public access television/Channel 17.
For more information, click on the following link: www.burlingtonvt.gov/DPW/Stormwater/IMSWP
Commissioner Simon requested a list of all problems caused by stormwater.

ITEM 6 – UPCOMING GARAGE CAPITAL WORK & BORROWING
(Communication, Patrick Buteau, Assistant Director)
(Refer to Packet)
Commissioner Hopkins deferred this Item until later in the meeting.

ITEM 7 – 3-WAY STOP REQUEST AT SHORE RD & BALSAM ST
(Communication, Damian Roy, Engineering Technician)
(Refer to Packet)
Staff recommends that the Commission deny Mr. Fraser's request to install 3-way Stop Control at the intersection of Shore Rd and Balsam St. **Commissioner Alberry moved** to accept staff's recommendation; Commissioner Barr seconded. Unanimous.
This is the second request, the first of which came to DPW in 2003. The conclusion now is the same as in 2003. Commissioner Hopkins encouraged staff to ask more questions about the *reason* behind a specific requested solution to a citizen's request to get to the core issue.

ITEM 8 – INTERSECTION SIGHT DISTANCES AT PEARL ST & GREENE ST
(Communication, Damian Roy, Engineering Technician)
(Refer to Packet)
Staff recommends that the Commission adopt the removal of on-street parking by one space to the east and west, on the north side of Pearl St, to increase the sight distances for vehicles entering Pearl St from Greene St. The addition of a STOP sign had been discussed by Assistant Director Baldwin and Mr. Roy. **Commissioner Overby moved** to accept staff's recommendation, *including the addition of a STOP sign*; Commissioner Simon seconded. Unanimous.
Commissioners Archambeau and Hopkins asked Mr. Roy to provide the Commission with a total number of spaces lost and gained in the past year as a result of ordinance changes (such as this site distance issue).
NOTE: The Commission requested that this particular challenging intersection be noted during the Pearl St Corridor Study.

ITEM 9 – TRUCK LOADING ZONE REQUEST AT 258 NO WINOOSKI AVE
(Communication, Damian Roy, Engineering Technician)
DEFERRED UNTIL THE JULY MEETING.

ITEM 6 – UPCOMING GARAGE CAPITAL WORK & BORROWING
(Communication, Patrick Buteau, Assistant Director)
(Refer to Packet)
The 2016 Traffic Budget was passed by the City Council. Assistant Director Buteau outlined the information in the packet, noting that the highlighted scheduled improvements/repairs have been moved up from their original order. The Commission is being asked for approval with a recommendation to the City Council to borrow the Phase I funds amounting to $3,435,831. The proposed 2016 Traffic Budget

proposal includes the debt service payments for this borrowing and enhanced garage maintenance funds while providing a balanced budget.
Commissioner Alberry moved to approve with a recommendation to City Council to borrow the Phase I funds in the amount of $3,435,831; Commissioner Barr seconded. Unanimous.
Note: The funds will be paid back from the traffic and garages revenue.

ITEM 10 – APPROVAL OF FY'16 KEY INITIATIVES & METRICS
(Communication, Chapin Spencer, Director)
(Refer to Packet)
The FY'16 budget was built to deliver on these initiatives. For #11, department-wide customer service, it was noted that some requests for service by nature take longer to implement (e.g., traffic calming requests) than other service requests (e.g., potholes).
The Commission is being asked to approve and endorse the Draft FY'16 Key Initiatives. **Commissioner Barr moved** to accept the Initiatives as written; Commissioner Padgett seconded. Unanimous.
Commissioner Padgett recognized that this is a dynamic document.

ITEM 11 – MINUTES OF 5/20/15
(Refer to Packet)
Director Spencer recommended one correction: Item 11, Director's Report, 1st bullet: Clean Sweep produced 570 (instead of 57) cubic yards of debris.
Commissioner Barr moved to accept the Minutes as amended; Commissioner Alberry seconded. Unanimous.

ITEM 12 – RECOGNITION OF SERVICE – ASA HOPKINS
Director Spencer and Commissioner Padgett expressed gratitude for Commissioner Hopkins' leadership, and presented him with a plaque with the following wording: "In grateful appreciation of Asa Hopkins for his dedicated service as Public Works Commissioner from 2012 – 2014 and Commission Chair from 2014 – 2015."

ITEM 13 – DIRECTOR'S REPORT
(Refer to Packet)

- The City Council passed the FY'16 budget last Monday. The proposed increases in capital funding for the General Fund which the Commission reviewed at the last meeting were included in the Budget *as funding was available*; the $2.3 million gap was reduced to $1.2 million, with new funding being secured, so additional sidewalk and bike path work, will get done in addition to the $18 million worth of projects also reviewed at the last meeting. The rate adjustments and increases for the Water Division were also approved, which will provide sufficient, sustainable capital for improvements.
- Parking Studies: A large portion of the July Commission meeting will be dedicated to the parking studies. Draft reports will be provided in the Commission Packets.
- Cliff Street sidewalk: Under construction.
- Flynn Avenue sidewalk: Underway next month.
- New Engineer has been hired: Martin Lee. The Plangineering group is now fully staffed. The FY '16 budget includes funding for additional staff for pushing downtown TIF projects forward, as well as enhanced street and sidewalk work.
- DPW will be presenting the 1st Phase of staff reorganization, to the Board of Finance this coming Monday and then to the City Council the following Monday. Oversight of Equipment Maintenance will be transferred from one Assistant Director (Patrick Buteau) to another (Rob Green). This will enable Assistant Director Buteau's replacement (Mr. Buteau is retiring) to

focus more time on parking changes. The 2nd Phase proposals will be brought before the Commission at a later date.

ITEM 14 – COMMISSIONER COMMUNICATIONS

Commissioner Barr

- Per discussion by Ward 1 attendees, requesting an adjustment in the evening and morning automated flashing of some of the traffic lights: The attendees are asking that this request be considered City-wide.
- See "Residential Parking Program" handout distributed by Commissioner Barr: Many residents are requesting that Commission Barr recuse himself from participation in the Residential Parking Study because of his employment with the University of Vermont (Director of Transportation and Parking). The handout explains Commissioner Barr's presence on the Commission as a Burlingtonian and commissioner (*not* as a UVM employee), and hopefully dispels some of the misinformation some of the residents have about possible benefits to UVM by his participation. Commissioner Barr has not yet decided whether he will recuse himself. Commissioner Simon suggested that the City Attorney be consulted on a possible conflict.

Commissioner Overby

- Would like to see regular reports on the Request for Service (RFS) program used by DPW, indicating open/closed/time-consuming projects, which might assist her when approached by residents about the length of time a request is taking. Assistant Director Baldwin would be glad to provide regular reports for the Commission; however, he cautions that the basic report would lead to questions about the work needed that the commissioners may not be able to explain to their constituents. Commissioner Overby feels that a basic report by category will give people an idea of the magnitude of requests that come through DPW.

Commissioner Simon

- Regarding Caryn Long's parking concerns Henry Street Market area: Is there anything the Commission can do? Assistant Director Baldwin and former Engineer Joel Fleming had met with the neighborhood and came up with the solution of adding a little more parking in that vicinity by shortening the prohibited sections and adding bump-outs, more 15-minute parking spaces, etc. Unfortunately, due to a lapse between Mr. Fleming's departure and Damian Roy's hire, the project is only beginning next week.

ITEM 15 – ADJOURNMENT & NEXT MEETING DATE – JULY 15, 2015

Commissioner Barr moved to adjourn the meeting at 9:30 p.m.; Commissioner Alberry seconded. Unanimous.

Non-Discrimination

The City of Burlington will not tolerate unlawful harassment or discrimination on the basis of political or religious affiliation, race, color, national origin, place of birth, ancestry, age, sex, sexual orientation, gender identity, marital status, veteran status, disability, HIV positive status or genetic information. The City is also committed to providing proper access to services, facilities, and employment opportunities. For accessibility information or alternative formats, please contact Human Resources Department at 865-7145.

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To: DPW Commissioners
Fr: Chapin Spencer, Director
Re: **Director's Report**
Date: July 9, 2015

THANK YOU PAT BUTEAU!
After more than three decades of dedicated service to the City, it is hard to imagine the wheels of BTV city government rolling without Pat Buteau. He started as an office manager for the Street Department in 1982 before there was a Department of Public Works. Pat will be retiring July 17. While I try not to panic about losing his financial expertise, creative problem solving and institutional knowledge, Pat's retirement will no doubt be a huge loss for the City. On the other hand, it should be a great benefit to his golf game and I expect to see him on the pro circuit soon. Please join staff in celebrating Pat at his retirement party next Friday:

Friday, July 10th, 3:15pm to 6:30pm
St. Johns Club
9 Central Avenue, Burlington
If you can't make it, feel free to send him a thank you email pbuteau@burlingtonvt.gov.

PLAN BTV WALK/BIKE IS UNDERWAY:
Plan BTV Walk Bike is a public planning process will culminate with the creation of the City's first Bicycle and Pedestrian Master Plan, as well as a scoping study of bicycle and pedestrian improvements that have been recommended in local municipal plans. The kick off was held on Wednesday, July 8th. There is a public workshop on Thursday July 9th from 6:30 to 8:30 at 144 Church Street if any Commissioners would like to join in. More information can be found at: http://www.planbtvwalkbike.org/

FY'15 YEAR END
FY'15 just ended on June 30th. Over the next couple of months we will be finalizing the financial reports. We are projecting to meet or beat our budgeted net for our main budgets: Water, Wastewater, Traffic and General Fund. Retail sales for water and wastewater were down a bit this year, but expenses were managed accordingly.

FY'16 PAVING WORK UNDERWAY:
The streets in the FY'16 street paving program can be found on our homepage: http://www.burlingtonvt.gov/DPW/

AUGUST COMMISSION MEETING?
Please come to the meeting with your summer schedule so we can discuss whether to have an August meeting – and when. The parking studies will likely require significant Commission attention over the next couple of months. The third Wednesday in August would be August 19th.